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1920

ANNUAL REPORT

OF THE

Health Bureau

OF THE

CITY OF RICHMOND, VA.

FOR THE

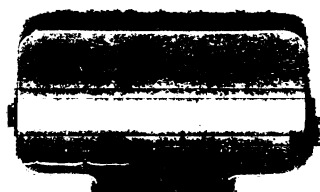
YEAR ENDING DECEMBER 31, 1920

RICHMOND:

CLYDE W. SAUNDERS, PRINTER

1921

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Dr. C. C. HUDSON, Health Officer
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Health Bureau

OF THE

CITY OF RICHMOND, VA.

FOR THE

YEAR ENDING DECEMBER 31, 1920

RICHMOND:
CLYDE W. SAUNDERS, PRINTER
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1920

*Medical
Gift
J. A. Valleron*

Bureau of Health, City of Richmond, Va.

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MEDICAL INSPECTOR

P. M. CHICHESTER, M. D.

DIVISION OF VITAL STATISTICS

AND RECORDS

Registrar and Chief Clerk

C. E. HAYWARD

Clerk

D. FERGUSSON

Stenographer

MRS. S. M. BAUGHAN

TUBERCULOSIS CLINICIAN AND

DIPHTHERIA CONSULTANT

P. D. LIPSCOMB, M. D.

Asst. Tuberculosis Clinician

G. A. EZEKIEL, M. D.

DIVISION OF LABORATORY

Bacteriologist

A. H. STRAUS

Asst. Bacteriologist

L. C. BIRD

DIVISION OF PUBLIC HEALTH NURSING.

Chief Nurse

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MISS CELESTE BARROW

MISS THERESA CHILDRESS

MISS BESSIE IRVING

MISS CAROLYN ROLLER

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MISS M. F. RICE

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DIVISION OF DAIRY INSPECTION

Dairy Inspector

T. J. STRAUCH

Asst. Dairy Inspector

R. M. C. HARRIS

DIVISION OF PLUMBING INSPECTION

Plumbing Inspector

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T. W. MITCHELL

DIVISION OF FOOD INSPECTION

Food Inspector

E. M. NOBLE*

Asst. Food Inspectors

JOHN T. GILL

JOHN A. DONATI

DIVISION OF SANITATION

Chief Sanitary Officer

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R. R. WRENN

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M. W. LAWRENCE

C. W. SIMS

K. C. SEARGEANT

S. A. HALL

J. F. WALLER

DISTRICT PHYSICIANS

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R. E. TIMBERLAKE, M. D.

L. D. BATKINS, M. D.

J. W. HANNABASS, M. D.

LAURENCE INGRAM, M. D.

CUSTODIAN SMALLPOX HOSPITAL

R. H. CROSTIC

* Died November 29, 1920.

ANNUAL REPORT

REPORT OF THE HEALTH OFFICER.

Dr. E. C. Levy,
Director of Public Welfare,
Richmond, Va.

Sir:

I have the honor to submit for your consideration this, my first annual report as Health Officer of Richmond, this being the forty-ninth annual report of the Richmond Health Bureau (formerly the Richmond Health Department). This is the second annual report of the Health Bureau since the Department of Public Welfare was organized and the fifteenth since the reorganization of the Health Department took place in 1906. I also present the reports of the heads of the different divisions of the Health Bureau, the report of the Coroner and various statistical tables, including a financial statement showing the expenses of the Health Bureau for the year 1920.

Most of the subjects considered in this report have been dealt with in previous reports of the Health Department. As is well known, public health work in Richmond has been of such a very high standard in recent years, that most of the field which we were able to cover with our budget had been thoroughly surveyed. This report will therefore show a continuation of the well organized effort for the reduction of deaths in Richmond, thought out and put into operation since the reorganization of the department in 1906.

The 1920 total death rate was the second lowest in the history of Richmond, being 16.46 per 1,000 population, and surpassed only by the 1919 record. The death rate excluding non-residents was 14.8 per 1,000.

The typhoid fever death rate of 6.4 per 100,000 population, while not so low as the typhoid death rate of 1919, was a very creditable rate, the increase having been due to deaths of more imported typhoid cases in 1920 than in 1919. There was also a very high case fatality during January and February, 1920, when four of the first five cases of typhoid reported died, most of the cases reported at that time being complicated by influenza and pneumonia. This is the fourth year in which the death rate from typhoid has been 7.2 per 100,000 population or below this figure.

Diarrhea in infants under two years of age showed a slight increase, the rate for 1920 being 39.3 per 100,000 population against the rate of 34.6 for 1919. Even with this slight increase, the rate is a very remarkable one.

The death rate from consumption was 130.1 per 100,000 population, which was the lowest rate ever recorded from this cause. There were no deaths from scarlet fever during 1920. Diphtheria showed a slight increase, the rate for 1920 being 11.6 per 100,000 population, as compared with a rate of 8.8 for the preceding year. Two of the deaths, however, during 1920, were cases brought to Richmond from outside the

City for treatment. The influenza outbreak which occurred during the latter part of January and continued during February and March was handled so effectively by the Director of Public Welfare that Richmond had one of the lowest death rates from this cause of any of the large cities of the United States.

POPULATION.

The population of Richmond, according to the census of January 1, 1920, was 171,667. Of this number 117,565 were white, 54,047 negroes and 55 others—Chinese, Japanese and Indians. The corresponding figures for 1910 were—whites, 80,879; negroes, 46,733; others, 16. The increase in Richmond's white population in the ten years was 36,686, or 45.4 per cent, while the increase in the negro population was 7,314, or 15.7 per cent.

Census Bureau's Population Estimate.

The official estimate of the Census Bureau of Richmond's 1920 mid-year population was 173,007, of which 118,866 were white and 54,141 colored. The estimated yearly increase in population for the next ten years furnished by the Census Bureau is 2,680, of which number 2,602 are white and 78 colored.

GENERAL DEATH RATE.

While it is recognized that the general death rate is not a true index of the efficiency of public health work in a community, still a steadily declining general death rate is very satisfactory to people living in any city. The 1920 total death rate of 16.46 is the lowest rate, with the exception of 1919, ever recorded in Richmond.

The following table shows the very remarkable decline in total death rate for the last fourteen years.

YEAR	NUMBER OF DEATHS			DEATH RATE PER 1,000 INHABITANTS		
	Non-Residents Included	Non-Residents Only	Non-Residents Excluded	Non-Residents Included	Non-Residents Only	Non-Residents Excluded
1907.....	2,652	155	2,497	23.88	1.37	22.02
1908.....	2,486	167	2,319	21.66	1.45	20.20
1909.....	2,404	219	2,185	20.69	1.88	18.81
1910.....	2,887	331	2,556	22.52	2.58	19.94
1911.....	2,718	267	2,451	20.77	2.04	18.78
1912.....	2,715	290	2,425	20.33	2.17	18.16
1913.....	2,718	297	2,421	19.95	2.18	17.77
1914.....	2,658	256	2,402	19.14	1.85	17.29
1915.....	2,922	268	2,654	18.31	1.68	16.63
1916.....	3,091	290	2,801	19.05	1.79	17.26
1917.....	2,936	251	2,685	17.80	1.52	16.28
1918.....	3,823	300	3,523	22.80	1.79	22.01
1919.....	2,669	242	2,427	15.67	1.42	14.25
1920.....	2,848	288	2,560	16.46	1.66	14.80

Death Rates from Special Causes.

The following table shows the decrease or increase, as the case may be, in the average annual death rates for the five-year periods, 1911-1915 and 1916-1920, from certain causes of death. As will be noted from this table, there was a decided decrease in the average annual death rates from typhoid fever, scarlet fever, tuberculosis and infantile diarrhea and a slight decrease in the average death rate from whooping cough during the period 1916-1920, as compared with the preceding five years, while the average death rates from measles, malaria and diphtheria show slight increases.

The average annual death rates from influenza, bronchopneumonia and lobar pneumonia show decided increases during the period 1916-1920 over the average death rates for the years 1911-1915, due to the severe influenza epidemics of the years 1918, 1919 and 1920. Cancer, apoplexy, organic heart disease, Bright's disease and deaths from violence all show decided decreases, as shown in the following table.

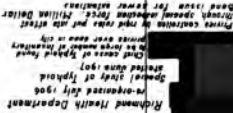
Table Giving Death Rate from Certain Important Causes, in the City of Richmond, Virginia, for the Years 1916-1920, inclusive; the Average Annual Death Rate from these Causes for the Five-Year Period, 1911-1915, and the Five-Year Period, 1916-1920, Inclusive; and a Comparison of the Death Rate for these Two Periods.

CAUSES OF DEATH	Annual Average 1911-1915	DEATH RATE PER 100,000					Annual Average 1916-1920	Decrease or Increase in Average Annual Death Rate of 1911-1915 Compared with 1916-1920
		1916	1917	1918	1919	1920		
Typhoid Fever.....	15.9	22.8	6.7	7.2	3.5	6.4	9.3	6.6
Malarial Fever.....	9.9	6.8	2.4	1.2	6.6	1.7	1.3	4*
Measles.....	5.8	24.6	3.6	4.8	2.3	5.8	8.2	2.4*
Scarlet Fever.....	1.8	1.2	6	0.0	1.8	0.0	7	1.1
Whooping Cough.....	21.1	28.3	26.7	13.1	11.2	23.1	20.5	7.6
Diphtheria.....	5.7	3.1	5.5	7.8	8.8	11.6	7.4	1.7*
Dysentery.....	13.1	8.0	10.9	4.8	5.9	6	6.0	7.1
Influenza.....	21.1	21.0	17.0	349.6	117.4	54.3	111.9	90.8*
Pneumonia (lobar or unqualified).....	90.6	107.8	109.1	224.9	91.0	108.7	128.3	37.7*
Broncho Pneumonia.....	73.2	79.5	74.6	92.5	63.4	76.3	77.3	4.1*
All diseases of the respiratory system (consumption not included).....	234.4	258.8	232.2	359.7	187.9	222.5	252.2	17.8*
Consumption.....	181.3	170.7	180.3	170.0	146.8	130.1	153.6	27.7
Other Tuberculous diseases.....	40.2	42.5	34.0	32.2	21.7	25.4	31.1	9.1
Cancer (of all organs).....	85.7	94.3	68.5	76.9	76.9	82.1	79.7	6.0
Apoplexy.....	136.1	135.6	129.1	138.6	108.9	127.2	125.9	10.2
Organic heart disease.....	139.1	194.1	219.4	180.1	151.5	167.6	182.5	10.6
Bright's disease.....	158.1	164.5	142.5	159.3	129.2	131.2	145.3	12.8
Diarrhea (under 2 years).....	92.8	62.9	68.5	48.3	34.6	39.3	50.8	42.0
Diarrhea (over 2 years).....	23.4	21.6	17.0	26.8	14.7	11.0	18.2	5.2
Congenital debility.....	108.5	115.2	111.5	117.5	83.4	94.2	104.4	4.1
Suicide.....	14.9	8.0	9.7	13.7	7.6	7.5	9.3	5.6
Legal electrocution.....	6.2	4.9	3.0	6	1.8	6	2.2	4.0
Other violent deaths (non-suicidal).....	117.2	79.5	78.8	88.9	69.3	80.9	79.5	37.7
Cause of death ill-defined or unknown.....	31.8	18.5	23.0	22.7	18.8	22.5	21.1	10.7
Total deaths, all causes:								
Non-residents included.....	1,970	1,905	1,780	2,280	1,567	1,646	1,886	134
Non-residents excluded.....	1,772	1,726	1,628	2,102	1,425	1,480	1,672	100

*Increase.

All death rates in the above table are calculated from the corrected estimate of the mid-year population estimated by the United States Bureau of the Census for the years 1911-1920, based on the 1920 census.

FROM



TYPHOID FEVER.

The 1920 typhoid death rate remained very satisfactory. The death rate of 6.4 per 100,000 population was higher than that of 1919, but this increase was due principally to more deaths of imported cases. This is the fourth year in which the death rate has been 7.2 or lower, the average for the last four years being 5.9. The following table shows the deaths and death rates from typhoid fever for each year during the last forty-one years.

YEAR	DEATHS FROM TYPHOID FEVER		YEAR	DEATHS FROM TYPHOID FEVER	
	Number of Deaths	Rate per 100,000		Number of Deaths	Rate per 100,000
1880.....	49	77.0	1900.....	88	103.3
1881.....	79	120.9	1901.....	49	56.6
1882.....	64	85.4	1902.....	63	71.6
1883.....	59	85.6	1903.....	64	71.7
1884.....	133	188.1	1904.....	47	51.8
1885.....	51	70.4	1905.....	40	43.5
1886.....	36	48.5	1906.....	41	43.9
1887.....	52	68.4	1907.....	47	41.4
1888.....	56	72.0	1908.....	57	49.7
1889.....	68	85.4	1909.....	28	24.1
1890.....	76	93.4	1910.....	28	21.8
1891.....	74	90.6	1911.....	23	17.6
1892.....	80	97.4	1912.....	22	16.5
1893.....	75	91.0	1913.....	27	19.8
1894.....	42	50.7	1914.....	19	13.7
1895.....	69	82.9	1915.....	19	11.9
1896.....	45	53.8	1916.....	37	22.8
1897.....	37	44.1	1917.....	11	6.7
1898.....	42	49.9	1918.....	12	7.2
1899.....	49	57.9	1919.....	6	3.5
			1920.....	11	6.4

The accompanying diagram shows in graphic form the death rates given in the above table.

The following table shows the average annual number of deaths and the average annual death rate in five-year periods since 1879:

PERIOD	AVERAGE ANNUAL MORTALITY FROM TYPHOID FEVER	
	Number of Deaths	Rate per 100,000
1880-1884 (5 years).....	76.8	113.4
1885-1889 (5 years).....	52.6	68.9
1890-1894 (5 years).....	69.4	81.6
1895-1899 (5 years).....	48.4	57.7
1900-1904 (5 years).....	62.2	71.0
1905-1909 (5 years).....	42.6	40.5
1910-1914 (5 years).....	23.8	17.9
1915-1919 (5 years).....	17.0	10.4
1920.....	11.0	6.4

The following table shows the deaths from typhoid by months since 1906.

Typhoid Fever Deaths by Months, 1907-1920.

YEAR	MONTHS												TOTAL
	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
1907	3	2	2	4	0	4	5	9	8	6	2	2	47
1908	6	3	2	2	5	2	6	14	14	1	3	1	57
1909	2	1	2	0	0	0	9	4	0	6	3	1	28
1910	0	1	0	2	2	2	4	2	8	3	1	3	28
1911	1	0	1	0	0	3	5	3	4	2	2	2	23
1912	3	0	1	0	1	2	3	2	7	8	0	0	22
1913	1	1	0	0	3	6	3	3	6	1	1	2	27
1914	3	0	1	0	2	1	2	4	3	0	1	2	19
1915	0	0	0	0	0	0	5	3	5	5	0	1	19
1916	1	2	1	0	0	1	7	13	9	2	0	1	37
1917	1	0	0	0	0	0	0	4	2	2	1	1	11
1918	0	0	0	0	1	3	0	5	1	1	0	0	12
1919	0	0	0	0	0	0	1	1	1	0	1	2	6
1920	1	3	0	0	0	0	4	0	1	1	1	0	11

Only 79 cases of typhoid fever, including cases contracted outside Richmond, were reported to the Health Bureau during 1920, which was the smallest number of cases reported in any year since the reorganization of the Health Department in 1906. The following table shows typhoid cases by months each year since 1906.

Table Showing Typhoid Fever Cases Reported Each Month 1907-1920.

YEAR	MONTHS												TOTAL
	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
1907	23	22	4	20	15	25	81	112	80	65	25	23	495
1908	47	39	23	16	23	34	79	96	65	36	23	13	494
1909	12	25	15	10	21	46	88	60	33	33	20	13	376
1910	20	7	9	5	13	15	41	52	43	26	18	14	268
1911	5	4	2	3	5	34	50	46	42	23	51	16	281
1912	7	2	2	3	6	18	46	49	33	28	12	2	208
1913	1	3	5	9	26	41	31	51	29	18	9	10	233
1914	7	3	3	6	2	15	26	27	19	19	7	11	148
1915	8	2	1	1	5	3	23	32	39	24	11	6	155
1916	3	2	1	0	1	9	51	105	26	19	4	3	224
1917	2	2	1	2	4	11	13	23	14	15	8	3	98
1918	1	2	0	7	9	18	20	20	19	6	2	1	105
1919	2	3	3	1	8	6	16	18	7	8	6	7	85
1920	3	4	2	4	0	3	15	16	13	9	7	3	79

While there were 11 deaths from typhoid fever in Richmond during 1920, not all of these should be charged to the City, as may be seen in

the accompanying table giving a summary of the deaths of typhoid cases contracted in Richmond and those contracted out of Richmond, in which the diagnosis was positive or doubtful. From this table it may be seen that only 4 deaths of cases definitely typhoid which were contracted in Richmond, occurred during 1920. Four of the deaths reported during 1920 were non-residents who contracted the disease outside Richmond and two residents contracted typhoid elsewhere and died in the City, while one of the deaths classed as contracted in Richmond was a very doubtful case.

Table Giving Summary of Typhoid Deaths in Richmond During 1920, Classified According to (1) Where Disease Was Contracted, (2) Whether Resident or Non-Resident of Richmond, and (3) Whether Diagnosis Was Positive or Doubtful.

	Contracted in Richmond			Contracted out of Richmond			All Cases		
	Resident	Non-resident	Total	Resident	Non-resident	Total	Resident	Non-resident	Total
Diagnosis Positive....	4	0	4	2	3	5	6	3	9
Diagnosis Doubtful...	1	0	1	0	1	1	1	1	2
All Cases.....	5	0	5	2	4	6	7	4	11

If the deaths of non-residents who contracted typhoid elsewhere and died in Richmond be deducted from the total number of 1920 typhoid deaths, the death rate from this cause would be only 4.0 per 100,000 population; while if we exclude all cases contracted outside Richmond, the death rate would be 2.9, the lowest typhoid death rate ever recorded of cases definitely contracted in Richmond. If the one death of the resident in which the diagnosis was doubtful be further excluded from our total deaths, our 1920 rate would be 2.3 per 100,000 population.

The following summary of the deaths and death rates from typhoid fever during 1920 confirms the above statement:

	Number of Deaths	Death Rate per 100,000
All deaths from typhoid fever in Richmond, 1920	11	6.4
Excluding non-residents who contracted the disease outside Richmond.....	7	4.0
Excluding all cases contracted outside Richmond	5	2.9
Excluding all cases contracted outside Richmond and all cases contracted in Richmond in which the diagnosis was doubtful	4	2.3

Typhoid in Dry Closet Sections.

Only 6 cases of typhoid were reported in homes having dry closets on the premises. Five of the cases in the dry closet area were located

on premises within 100 yards of the City limits, so that the infection may have taken place, in at least a part of these cases, from flies coming from open closets located outside the City limits. As there were 3,141 dry closets in Richmond at the beginning of 1920, this case record is a very remarkable one. Three sanitary officers were detailed to inspect dry closets on March 15th and continued this work until October 15th. All closets were carefully inspected at regular intervals to see that they were kept in proper condition to exclude flies. A placard was prepared and posted in all closets, warning those who used the closet of its dangers.

Sewer Connections.

While our dry closet work has shown excellent results in typhoid prevention, it should not be considered as taking the place of sewer extension. During the ten years, 1907-1916, the lowest number of sewer connections made in any one year by the sanitary inspectors was 333, and the highest number made any one year was 1,328. The average for each year during the ten years was 653. During 1917 only 148 sewer connections were made; in 1918, 188; in 1919, the number further dropped to 58; and in 1920 the sanitary officers were only able to have 29 houses connected with the sewer. Sewers should be rapidly extended in order that premises which have dry closets may be connected.

Dry Closets Near the City Limits.

The suburbs immediately adjacent to the City limits are rapidly building up. The dry closets on many of these premises are in a very insanitary condition and are dangerous for City people living on adjacent streets. This matter was taken up with the State Health Department and with the county health officers of Henrico and Chesterfield. It is hoped that these dangers may be eliminated.

Laboratory Diagnosis.

As will be seen in the report of Mr. A. H. Straus, City Bacteriologist, the microscopic Widal test (which has been a very unsatisfactory aid in the diagnosis of typhoid), was replaced during the year with the more accurate macroscopic test. Cultures were also made from typhoid stools in several instances which proved of further diagnostic assistance. With the blood culture, macroscopic Widal and stool examinations for assistance of physicians, there should be no reason for any physician not securing a positive laboratory test in any case of typhoid.

Typhoid Carriers.

One typhoid carrier was located during the year in a food handler, and regulations were adopted by the Advisory Board requiring specimen to be submitted for examination from all persons who had previously had typhoid fever, whenever this was considered necessary by the Health

Officer. The release of typhoid cases by two successive negative stool examinations was also provided for. The release of cases by stool examinations has only been extended to food handlers, but as our cases of typhoid have reached such a low number, it is likely that all cases may soon be released by this method.

Secondary Cases.

Only one case of typhoid fever was reported during 1920 which had probably contracted the disease from a previous case in the home. A number of the cases were placed in hospitals for treatment. As we have such a small number of cases each year in Richmond, every case of typhoid should be segregated in a hospital. Typhoid vaccination was urged in all homes in which there was a case of typhoid and in most instances the families were vaccinated either by the Medical Inspector or by the family physician. With early reports of cases by physicians, the institution of precautions at an early date, the isolation of typhoid cases in the hospitals and typhoid vaccination, secondary cases of typhoid fever should continue to be kept at a low level.

MALARIA.

There were 3 deaths attributed to malaria during 1920, giving a death rate of 1.7 per 100,000 population. The following table shows the deaths and death rates from malaria for each year as far back as 1904.

Deaths from Malarial Fever.

YEAR	No. of Deaths	Death Rate per 100,000
1904	17	18.8
1905	28	30.4
1906	14	15.0
1907	32	28.2
1908	7	6.1
1909	9	7.7
1910	6	4.7
1911	1	0.8
1912	3	2.2
1913	0	0.0
1914	1	0.7
1915	1	0.6
1916	1	0.6
1917	4	2.4
1918	2	1.2
1919	1	0.6
1920	3	1.7
Annual average 1904-07	22.8	23.1
Annual average 1908-10	7.3	6.2
Annual average 1911-15	1.2	0.9
Annual average 1916-20	2.2	1.3

It has been frequently pointed out in previous reports of the Health Department that malaria is very rarely a cause of death in Richmond, most of the deaths attributed to this cause being mistakes in diagnosis.

One of the deaths attributed to malaria was a white male, 36 years of age, who died of uremia following acute nephritis, malaria being placed on the death certificate as a complication. One patient was a woman, 60 years of age, who had lived some years in a malarial neighborhood in another part of Virginia. The third death attributed to this cause during 1920 was that of a negro woman, 56 years of age, who was ill only ten days, no blood examination having been made.

Mosquito Eradication.

With the beginning of the mosquito season, the sanitary officers were instructed to look after all ditches and other places where there might be stagnant water and to have such places drained. Several complaints were received from different parts of the City that mosquitoes were prevalent in the homes. These complaints were immediately investigated and the breeding places were usually very easy to locate. The catch basins on smooth paved streets, which are flushed regularly, were found to be one of the chief breeding places. These basins were then regularly oiled by the Street Cleaning Bureau. A number of other places where mosquitoes were breeding were oiled or drained. Mosquitoes were not prevalent enough in any section of the City to constitute a serious nuisance.

DIPHTHERIA.

There was a decided increase in the diphtheria case incidence and also in the death rate during 1920, both the death rate and case incidence being higher than any year since 1907. The following table shows the deaths and death rates from diphtheria for each year beginning with 1875.

YEAR	DEATHS FROM DIPHTHERIA		YEAR	DEATHS FROM DIPHTHERIA	
	Number of Deaths	Death Rate per 100,000		Number of Deaths	Death Rate per 100,000
1875.....	31	54.1	1895.....	20	24.0
1876.....	45	76.8	1896.....	19	22.7
1877.....	21	35.1	1897.....	17	20.2
1878.....	36	58.9	1898.....	13	15.4
1879.....	27	43.8	1899.....	5	5.9
1880.....	16	25.2	1900.....	6	7.0
1881.....	28	42.8	1901.....	10	11.6
1882.....	29	43.2	1902.....	38	43.2
1883.....	37	53.7	1903.....	44	49.3
1884.....	15	21.2	1904.....	10	11.0
1885.....	22	34.5	1905.....	12	13.0
1886.....	59	79.4	1906.....	10	10.7
1887.....	74	97.3	1907.....	16	14.1
1888.....	26	33.4	1908.....	4	3.5
1889.....	35	44.0	1909.....	9	7.7
1890.....	79	97.0	1910.....	13	10.1
1891.....	145	177.4	1911.....	13	9.9
1892.....	10	12.2	1912.....	8	6.0
1893.....	10	12.1	1913.....	8	5.9
1894.....	8	9.7	1914.....	4	2.9
			1915.....	6	3.8
			1916.....	5	3.1
			1917.....	9	5.5
			1918.....	13	7.8
			1919.....	15	8.8
			1920.....	20	11.6

The following table gives the average deaths and death rates arranged in five-year periods.

PERIOD	AVERAGE MORTALITY FROM DIPHTHERIA	
	Number of Deaths	Death Rate per 100,000
1875-1879 (5 years).....	32.0	53.6
1880-1884 (5 years).....	25.0	37.2
1885-1889 (5 years).....	43.8	57.7
1890-1894 (5 years).....	50.4	61.7
1895-1899 (5 years).....	14.8	17.6
1900-1904 (5 years).....	21.6	24.4
1905-1909 (5 years).....	10.2	9.8
1910-1914 (5 years).....	9.2	7.0
1915-1919 (5 years).....	9.6	5.8
1920.....	20.0	11.6

The following chart shows the death rates from diphtheria for the last forty-one years.

The prevalence of diphtheria in past years has varied at different periods. During 1910 and 1911 both the case rate and case fatality were fairly high. The years 1915 and 1917 also ran high case rates, but the case fatality was very low. The case fatality was very high in 1918

and 1919, while the case rate was low. In 1920 the case rate was highest for any year since the reorganization of the Health Department in 1906. However, by the early administration of large doses of antitoxin and by intubation of laryngeal cases we were able to secure a case fatality rate of 3.4 per cent.

The following table shows the diphtheria case rate per 100,000 population and the case fatality for each year since 1906.

Table Showing Diphtheria Case Rate and Case Fatality, 1907-1920.

YEAR	Cases Reported	Case Rate Per 100,000 Population	Deaths	Case Fatality Per Cent.
1907	162	143	16	9.9
1908	218	190	4	1.8
1909	181	156	9	5.0
1910	260	203	13	5.0
1911	268	210	13	4.9
1912	206	154	8	3.9
1913	189	124	8	4.7
1914	208	150	4	1.9
1915	312	195	6	1.9
1916	244	150	5	2.0
1917	396	266	9	2.4
1918	206	123	13	6.3
1919	269	168	15	5.6
1920	584	337	20	3.4

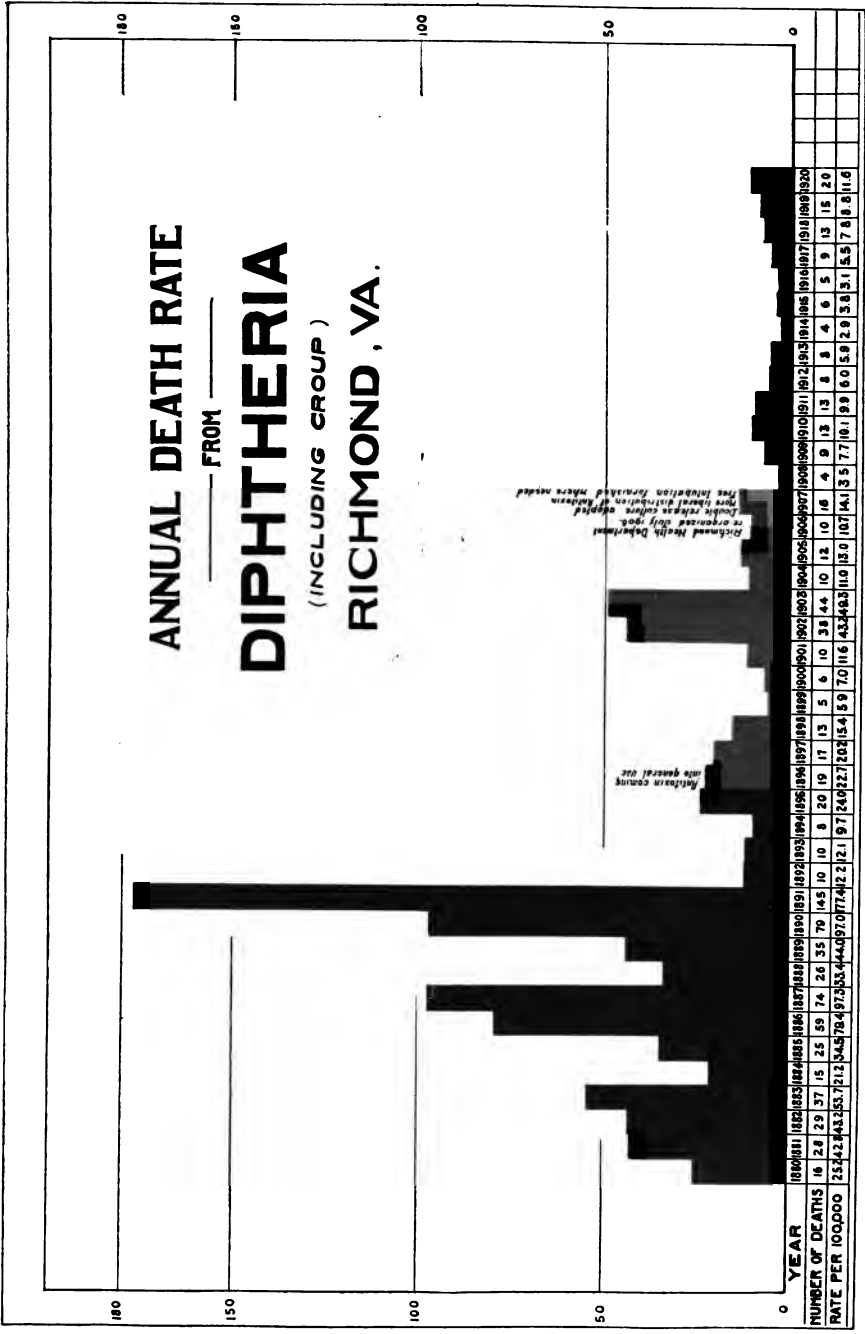
As is well known, diphtheria antitoxin is almost a certain cure for diphtheria if administered early and in sufficient doses. The chief causes of death during the year from diphtheria were delay in calling a physician, delay in the administration of antitoxin by the physician after being called, or the lack of a sufficient dose of antitoxin.

One of the patients, while treated early and given sufficient antitoxin, developed acute nephritis from which it died. One of the other patients died from cerebral edema one month after being released from quarantine, diphtheria being placed on the death certificate as a complication. Two of the patients were brought to Richmond in an incurable condition.

The diphtheria case incidence ran somewhat higher than normal during the early months of 1920. With the opening of schools, however, on September 12th, there was a decided increase in the case incidence, showing the prevalence of carriers among the school children. This increase was particularly marked on the Southside in the neighborhood of Maury School, and a number of carriers were found in this school and isolated.

Upon the opening of the schools, the Medical Inspector was requested to be present at a meeting of the school nurses and to advise them to be on the lookout for cases of sore nose, skin sores, and children who had been out of school with sore throats, and to secure cultures from all such children. The nurses rendered very valuable assistance and a number of nasal cases and skin cases were found in the schools.

ANNUAL DEATH RATE FROM DIPHTHERIA (INCLUDING GROUP) RICHMOND, VA.



Richmond Health Department
re-organized city gov.
Public relations section, organized
Free tuberculin furnished where needed
into general use

Refusal to Allow Administration of Antitoxin.

The mother of one of the patients, who was a Christian Scientist, refused to allow her child to be examined for diphtheria after the case had been reported to the Health Bureau by a neighbor. From the symptoms given by the neighbor and by the mother, it was decided that the child probably had diphtheria. One death had been reported in this family in 1916 from diphtheria—the patient in that instance having been badly neglected. This matter was immediately taken up in the Juvenile Court and the mother summoned to court for neglecting her child. She then gave permission for the child to be properly treated, and although it was in a very serious condition, its life was saved by the administration of an enormous dose of antitoxin.

One of the deaths recorded during the year was that of a child whose mother refused to allow the physician to administer antitoxin. This patient had a mild case of diphtheria when first diagnosed by the laboratory and quarantined by the Medical Inspector, who was told that the physician would give antitoxin in the afternoon. As the case was very mild, no further supervision was thought necessary, and the child died eight days later, the mother having refused to allow antitoxin to be administered and the physician having neglected to report the matter to the Health Bureau until the child was in a dying condition. If the physician had reported this case to the Health Bureau as he should have done, its death could have been prevented. It is difficult to understand how any mother can hesitate or refuse to allow the administration of a remedy which is of so little danger and so certain a cure in a disease so dangerous as diphtheria.

The demand for free antitoxin was very heavy during the year and \$2,499 was spent for this purpose—thus exceeding our appropriation of \$1,000. However, this money was well spent, as many deaths were undoubtedly prevented and no one died during the year who could not have had sufficient antitoxin.

Laryngeal Cases.

I wish to call your attention to the report of Dr. P. D. Lipscomb, Diphtheria Consultant. Dr. Lipscomb rendered assistance in 19 cases during the year, without a death. There were 11 intubations performed during 1920. This was the first year since Dr. Lipscomb began this work with the Health Department, in 1907, that he has been lucky enough to escape without the death of a case under his supervision.

SCARLET FEVER.

Scarlet fever did not threaten to become epidemic at any time during 1920—only 229 of the usual mild cases being reported to the Health Bureau. There were no deaths from this cause. The following table shows the number of deaths and death rates from scarlet fever for each year since 1871.

YEAR	DEATHS FROM SCARLET FEVER		YEAR	DEATHS FROM SCARLET FEVER	
	Number of Deaths	Death Rate Per 100,000		Number of Deaths	Death Rate Per 100,000
1872.....	2	3.7	1895.....	3	3.6
1873.....	4	7.3	1896.....	3	3.6
1874.....	3	5.3	1897.....	1	1.2
1875.....	1	1.7	1898.....	2	2.4
1876.....	6	10.2	1899.....	2	2.4
1877.....	27	45.1	1900.....	3	3.5
1878.....	105	171.9	1901.....	0	0.0
1879.....	98	157.2	1902.....	2	2.3
1880.....	4	6.3	1903.....	3	3.4
1881.....	0	0.0	1904.....	2	2.2
1882.....	8	11.9	1905.....	1	1.1
1883.....	2	2.9	1906.....	3	3.2
1884.....	6	8.5	1907.....	0	0.0
1885.....	8	11.0	1908.....	1	.9
1886.....	6	8.1	1909.....	1	.9
1887.....	1	1.3	1910.....	0	0.0
1888.....	1	1.3	1911.....	3	2.3
1889.....	1	1.3	1912.....	1	.7
1890.....	1	1.2	1913.....	5	3.7
1891.....	3	3.7	1914.....	2	1.4
1892.....	1	1.2	1915.....	1	.6
1893.....	1	1.2	1916.....	2	1.2
1894.....	1	1.2	1917.....	1	.6
			1918.....	0	0.0
			1919.....	3	1.8
			1920.....	0	0.0

Combining the figures of the above table, we have the following average deaths and death rates arranged in five year groups.

PERIOD	AVERAGE ANNUAL MORTALITY FROM SCARLET FEVER	
	Number of Deaths	Rate Per 100,000
1872-1874 (3 years).....	3.0	5.4
1875-1879 (5 years).....	47.4	77.2
1880-1884 (5 years).....	4.0	5.9
1885-1889 (5 years).....	3.4	4.6
1890-1894 (5 years).....	1.4	1.7
1895-1899 (5 years).....	2.2	2.6
1900-1904 (5 years).....	2.0	2.3
1905-1909 (5 years).....	1.2	1.2
1910-1914 (5 years).....	2.2	1.6
1915-1919 (5 years).....	1.4	.8
1920.....	0.0	0.0

While scarlet fever has caused little trouble in recent years, as may be seen from the above tables, it is a disease to be feared and every possible means should be used to prevent its spread in the community. It has been shown that any disease when allowed to be spread through a community tends to become more severe. If scarlet fever were not held in check, it might at any time become very virulent, and the ex-

perience of Richmond in the years 1877-79, when there was an exceedingly high death rate from this cause, be repeated, as was so well pointed out in several of the annual reports of the Richmond Health Department. We also might import a virulent form of scarlet fever which would cause serious harm to the City. Even the mild cases of scarlet fever tend to leave children, who are the chief sufferers, with defective ears, kidneys and other handicaps for life.

MEASLES.

It was rather expected that there would be a considerable outbreak of measles during 1920, as comparatively small outbreaks of this disease have occurred since 1916, when there were 38 deaths from this cause. However, there was a comparatively small outbreak of measles—only 2,607 cases in all being reported, with ten deaths, giving a case fatality of .38 per cent, the lowest case fatality ever recorded in the City. The death rate from this cause was only 5.8 per 100,000 population.

The following table shows the deaths and death rates from measles for each year since 1879.

YEAR	Number of Deaths	Annual Death Rate Per 100,000	YEAR	Number of Deaths	Annual Death Rate Per 100,000
1880.....	3	4.7	1900.....	3	3.5
1881.....	14	21.4	1901.....	0	0.0
1882.....	1	1.5	1902.....	3	3.4
1883.....	10	14.5	1903.....	13	14.6
1884.....	12	17.0	1904.....	0	0.0
1885.....	1	1.4	1905.....	1	1.1
1886.....	0	0.0	1906.....	1	1.1
1887.....	24	31.6	1907.....	35	80.9
1888.....	5	6.4	1908.....	6	5.2
1889.....	0	0.0	1909.....	1	.9
1890.....	27	33.2	1910.....	29	22.6
1891.....	5	6.1	1911.....	12	9.2
1892.....	0	0.0	1912.....	1	.7
1893.....	10	12.1	1913.....	25	18.4
1894.....	1	1.2	1914.....	1	.7
1895.....	0	0.0	1915.....	0	0.0
1896.....	11	13.2	1916.....	40	24.6
1897.....	0	0.0	1917.....	6	3.6
1898.....	8	9.5	1918.....	8	4.8
1899.....	0	0.0	1919.....	4	2.3
			1920.....	10	5.8

The following table gives the average annual number of deaths and average death rates from measles by five year periods.

PERIOD	MORTALITY FROM MEASLES	
	Number of Deaths	Rate Per 100,000
1880-1884 (5 years)	8.0	11.8
1885-1889 (5 years)	6.0	7.7
1890-1894 (5 years)	8.6	10.7
1895-1899 (5 years)	3.8	4.5
1900-1904 (5 years)	3.8	4.3
1905-1909 (5 years)	8.8	7.8
1910-1914 (5 years)	13.6	10.3
1915-1919 (5 years)	11.6	7.1
1920	10.0	5.8

The type of outbreak in 1920 was different from that in recent years. The disease usually increases rapidly to a peak and then gradually declines. In this outbreak, however, it began the latter part of November, 1919, and increased gradually until January, 1920, when 332 cases were reported. There was no very decided increase in cases reported until April, when the number of cases reported increased to 482, with a further increase in May to 563. The deaths from this cause also ran differently from what we usually expect, two deaths each month being reported in February, March, April and May, and one death in June and one in July.

WHOOPING COUGH.

Whooping cough again demonstrated that it is our most serious communicable disease of childhood, 40 deaths having been reported during the year from this cause. The outbreak began in April and extended throughout the year.

The following table shows the deaths and death rates per 100,000 population from whooping cough for each year since 1870.

Table Showing the Annual Number of Deaths and the Annual Death Rate From Whooping Cough, in Richmond, Va., 1871-1920.

YEAR	DEATHS FROM WHOOPING COUGH		YEAR	DEATHS FROM WHOOPING COUGH	
	Number of Deaths	Death Rate Per 100,000		Number of Deaths	Death Rate Per 100,000
1871.....	115	219.9	1895.....	4	4.8
1872.....	4	7.5	1896.....	24	28.7
1873.....	17	31.0	1897.....	31	38.9
1874.....	37	68.0	1898.....	3	3.6
1875.....	8	5.2	1899.....	0	0.0
1876.....	72	122.7	1900.....	27	31.7
1877.....	15	25.1	1901.....	35	40.4
1878.....	10	16.4	1902.....	19	21.6
1879.....	1	1.6	1903.....	56	62.7
1880.....	42	66.0	1904.....	2	2.2
1881.....	35	53.5	1905.....	1	1.1
1882.....	12	17.9	1906.....	52	55.7
1883.....	54	78.4	1907.....	8	2.6
1884.....	19	26.9	1908.....	33	28.8
1885.....	7	9.7	1909.....	13	11.2
1886.....	42	56.5	1910.....	47	36.7
1887.....	26	34.9	1911.....	51	39.0
1888.....	3	3.9	1912.....	5	3.7
1889.....	17	21.4	1913.....	17	12.5
1890.....	45	55.3	1914.....	61	43.9
1891.....	6	7.3	1915.....	10	6.3
1892.....	38	46.3	1916.....	46	28.3
1893.....	16	19.4	1917.....	44	26.7
1894.....	21	25.4	1918.....	22	13.1
			1919.....	19	11.2
			1920.....	40	23.1

The following table shows the average annual number of deaths and the average death rate from whooping cough in five-year periods for the last fifty years.

PERIOD	AVERAGE ANNUAL MORTALITY FROM WHOOPING COUGH	
	Number of Deaths	Rate Per 100,000
1871-1874 (5 years).....	43.3	31.1
1875-1879 (5 years).....	20.2	34.2
1880-1884 (5 years).....	32.4	48.5
1885-1889 (5 years).....	19.0	25.1
1890-1894 (5 years).....	25.2	30.7
1895-1899 (5 years).....	12.4	14.8
1900-1904 (5 years).....	27.8	31.7
1905-1909 (5 years).....	20.4	20.0
1910-1914 (5 years).....	36.2	27.2
1915-1919 (5 years).....	23.2	17.1
1920.....	40.0	23.1

Whooping cough was very fatal in negro children, 32 of the 40 deaths having been reported in negroes.

SMALLPOX.

Only three cases of smallpox were reported to the Health Bureau during 1920, all of which were contracted outside Richmond. One of the patients was a traveling man who came to Richmond after breaking out with the disease in Southwest Virginia. Another patient, a child, contracted the disease while on a visit to South Carolina; while the third patient was a negro who came to Richmond with smallpox from Norfolk. The three patients recovered.

All persons exposed to the patients were immediately vaccinated and no secondary cases occurred in the City. The children in one home had been exposed to smallpox seven days when the case was reported. These children were removed to the smallpox hospital, which is located in Henrico County, where one developed a mild case of variloid. While we have had very little trouble in controlling smallpox for a number of years, it is well to always keep before us the fact that it is a very dangerous disease, and that unless a good proportion of the people in Richmond keep themselves immune to the disease by vaccination, that it might at any time cause serious harm.

The accompanying chart shows what smallpox did in Richmond in 1881-2. Vaccination, which is the principal means of protecting the community, had been known at that time for 85 years, and yet many people were apparently ignorant of its protective value. We still have people in Richmond who do not realize what a great blessing vaccination is to the community.

INFANTILE PARALYSIS.

There were only three cases of infantile paralysis reported to the Health Bureau in 1920, two of which were City cases, while one patient developed the disease elsewhere and was brought to Richmond for treatment. No deaths were reported from this cause, and the two City cases recovered without any permanent paralysis.

TUBERCULOSIS.

There were 225 deaths from pulmonary tuberculosis (consumption) in Richmond during 1920, of which 113 were white and 112 colored. The total death rate of 130.1 per 100,000 population was made up of a rate of 95.1 for whites and 206.9 colored. The total death rate from this cause was the lowest ever recorded in the City, the next lowest rate being in 1919 when the rate was 146.8 per 100,000 population. There has been a steady decline in the tuberculosis death rate since 1906, when the Health Department was reorganized. The death rate in 1906 was 251.5 per 100,000 population, the white rate being 173.8 and the colored 383.4. The rate in both races has been cut almost in half in the last fifteen years, as may be seen from the following table:

ANNUAL DEATH RATE FROM SMALLPOX RICHMOND, VA.

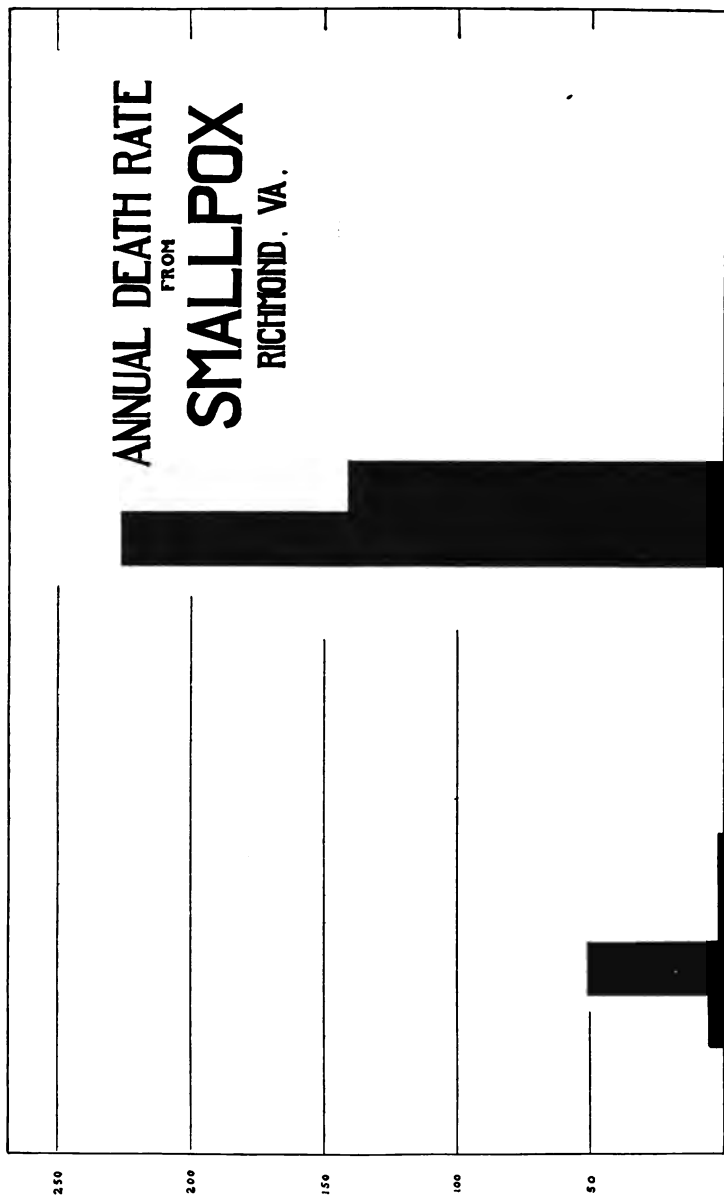


Table Showing Deaths and Death Rates, by Races, from Consumption, Richmond, Va., 1906-1920.

YEAR	DEATHS			DEATH RATE PER 100,000 POPULATION		
	White	Colored	Total	White	Colored	Total
1906	102	183	285	173.8	383.4	251.5
1907	117	143	260	166.1	332.9	229.2
1908	106	118	223	147.0	272.0	194.4
1909	99	143	242	136.8	326.8	208.4
1910	131	155	286	161.6	330.8	223.6
1911	106	163	268	125.0	348.0	204.9
1912	118	152	270	136.2	324.0	202.2
1913	74	140	214	82.9	297.9	167.1
1914	83	164	247	90.4	348.4	177.8
1915	108	155	263	102.0	288.4	164.8
1916	110	167	277	101.4	310.2	170.7
1917	106	143	248	94.5	265.3	150.8
1918	135	150	285	118.8	278.0	170.0
1919	123	127	250	105.8	233.0	146.8
1920	113	112	225	95.1	206.9	130.1

The following table shows the average deaths and death rates from consumption, white and colored, arranged in five-year groups:

	AVERAGE DEATHS			AVERAGE DEATH RATE PER 100,000		
	White	Colored	Total	White	Colored	Total
1906-1910	110.8	188.4	249.2	157.1	337.2	221.4
1911-1915	97.6	164.8	252.4	107.1	321.3	181.3
1916-1920	117.2	139.8	257.0	103.1	267.8	163.6

From the above tables it will be seen that the tuberculosis problem is not a hopeless one and that great results have been achieved in this field.

The use of the X-ray at Virginia Hospital for confirmation of the diagnosis in doubtful cases examined at the Dispensary has been of great assistance to the Clinic staff. This work was begun in May. We trust that the use of the X-ray may be extended during 1921, as it is a very great aid in the early diagnosis of tuberculosis.

Need of More Hospital Beds.

There is great need for more beds for tuberculosis cases at Pine Camp. The nurses have a constant waiting list for admission. The need is particularly great for incipient cases and for infected children. Many patients would be glad to pay all or a part of their expenses in order to be able to secure admission to the institution.

Co-operation of the Richmond Tuberculosis Association.

In June the Richmond Tuberculosis Association offered the Department of Public Welfare \$1,000 to be used for the establishment of new

tuberculosis work. It was decided to recommend the appointment of a whole time tuberculosis clinician to direct the tuberculosis work of the City Health Bureau and to care for the patients at Pine Camp. We believe that with the assistance of a whole time consultant in this work, the Bureau will get better reports of tuberculosis cases, and that there will also be a very great increase in the number of early diagnoses made by physicians at a time when treatment affords best results. While we have not been able to obtain the services of a satisfactory physician this far, we trust that one will be found in the near future.

INFLUENZA.

Influenza, which caused such great loss of life in 1918 and continued over into 1919, after an absence of several months, recurred in the early part of 1920. The 1918 influenza outbreak was undoubtedly the most severe which Richmond has ever witnessed. The following table shows the deaths and death rates from influenza, broncho-pneumonia and pneumonia for each year since 1871.

Deaths and Death Rates from Influenza, Bronchopneumonia and Lobar Pneumonia, 1872-1920.

YEAR	INFLUENZA		BRONCHO-PNEUMONIA		LOBAR PNEUMONIA	
	Deaths	Death Rates	Deaths	Death Rates	Deaths	Death Rates
1872	.....	.....	.....	.....	98	183.2
1873	.....	.....	.....	.....	109	198.9
1874	.....	.....	.....	.....	88	157.1
1875	.....	.....	.....	.....	106	185.0
1876	.....	.....	.....	.....	88	141.7
1877	.....	.....	.....	.....	72	120.8
1878	.....	.....	.....	.....	96	58.9
1879	.....	.....	.....	.....	98	154.2
1880	.....	.....	.....	.....	71	111.6
1881	.....	.....	.....	.....	88	127.0
1882	.....	.....	.....	.....	108	153.4
1883	.....	.....	.....	.....	102	147.9
1884	.....	.....	.....	.....	104	147.1
1885	.....	.....	.....	.....	101	139.4
1886	.....	.....	.....	.....	90	121.1
1887	.....	.....	1	1.3	98	128.8
1888	.....	.....	1	1.3	89	114.4
1889	.....	.....	.....	.....	86	108.0
1890	4	4.9	.....	.....	190	233.6
1891	12	14.7	.....	.....	132	161.6
1892	15	18.3	1	1.2	129	157.2
1893	12	14.5	4	4.8	125	224.5
1894	12	14.5	1	1.2	101	121.9
1895	7	8.4	9	10.8	96	115.4
1896	4	4.8	6	7.2	146	173.6
1897	13	15.5	5	6.0	98	116.7
1898	10	11.8	2	2.4	126	149.5
1899	25	34.5	16	18.0	107	126.4
1900	30	35.2	33	38.8	129	151.5
1901	41	47.6	19	22.1	166	191.9
1902	9	10.2	33	37.5	140	159.8
1903	24	26.9	44	49.3	134	150.1
1904	29	32.2	38	36.6	161	177.7
1905	14	15.2	38	41.3	141	153.2
1906	15	16.1	26	28.9	123	131.7
1907	47	41.4	70	61.7	227	200.2
1908	88	83.1	57	49.6	152	132.4
1909	15	12.9	51	43.9	119	102.5
1910	33	25.7	99	77.3	148	115.5
1911	32	24.5	83	63.4	115	87.9
1912	25	18.7	104	77.8	113	84.6
1913	30	22.0	94	69.0	102	74.9
1914	25	18.0	122	87.8	122	87.8
1915	36	22.6	108	67.7	188	117.8
1916	34	20.9	129	79.5	175	107.8
1917	28	17.0	123	74.6	180	109.1
1918	536	349.6	155	92.5	377	224.9
1919	200	117.4	106	63.4	155	91.0
1920	94	54.3	132	76.3	188	106.7

The deaths from influenza and pneumonia gradually increased from 1913 to 1918. The following table shows the deaths and death rates from the three diseases for the five years preceding the outbreak of 1918, and also shows the death rates for the three epidemic years:

*Death Rates from Influenza, Lobar Pneumonia and Bronchopneumonia,
1913-1920.*

YEAR	DEATH RATES PER 100,000 INHABITANTS			
	INFLUENZA	LOBAR PNEUMONIA	BRONCHO- PNEUMONIA	COMBINED
1913	22.0	74.9	69.0	165.9
1914	18.0	87.8	87.8	193.6
1915	22.6	117.8	67.7	208.1
1916	20.9	107.8	79.5	208.2
1917	17.0	109.1	74.6	200.7
Average for 5 years.....	20.1	99.5	75.7	195.3
1918	349.6	224.9	92.5	667.0
1919	117.4	91.0	63.4	271.8
1920	54.3	108.7	76.3	239.3

The 1918 influenza outbreak started the last week in September and caused an enormous loss of life during the month of October. It then receded somewhat, but the outbreak recurred in December, 1918, and gradually declined during 1919 until September, when the disease was almost entirely absent from the City. This outbreak recurred, however, the latter part of January, 1920, and caused a decided increase in the number of deaths during February and March. The following table shows the deaths from influenza, pneumonia and bronchopneumonia by months for the three years, 1918, 1919 and 1920:

*Deaths from Influenza, Pneumonia and Bronchopneumonia by Months,
1918-1920.*

1918	MONTHS												
	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Influenza.....	2	1	2	2	3	0	1	0	4	346	74	151	586
Bronchopneumonia.....	15	24	15	12	3	5	7	3	5	29	20	17	155
Lobar Pneumonia.....	22	35	30	16	11	7	3	3	10	174	19	47	377
Total.....	39	60	47	30	17	12	11	6	19	549	113	215	1,118

1919													
	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Influenza.....	98	29	38	11	9	3	4	5	1	1	0	1	200
Bronchopneumonia.....	20	14	12	8	5	10	4	4	3	5	10	13	108
Pneumonia—Lobar.....	34	16	20	16	9	6	7	5	6	3	16	17	155
Total.....	152	59	70	35	23	19	15	14	10	9	26	31	463

1920													
	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Influenza.....	12	61	9	1	4	2	0	0	0	0	1	4	94
Bronchopneumonia.....	13	24	21	8	8	6	14	5	4	8	11	10	132
Pneumonia—Lobar.....	34	54	17	12	12	7	9	6	3	7	11	16	188
Total.....	59	139	47	21	24	15	23	11	7	15	23	30	414

The 1920 influenza outbreak began during the week beginning January 19th. The Director of Public Welfare immediately took personal charge of the measures for the control of the disease. The Medical Inspector who had been performing the duties of Health Officer (the present incumbent not having arrived) developed influenza very early in the outbreak, and thus all measures adopted for controlling the disease were put into effect by the Director of Public Welfare.

The outbreak apparently reached its height about the first week in February, from which time there was a gradual decline—2,350 cases in all being reported in January, 3,805 in February and 32 cases in March, making a total of 6,187 cases in all. The following table shows the cases of influenza reported each day during the time the outbreak lasted:

Table Showing Cases of Influenza Reported by Days, 1920.

MONTHS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total	
January ..	3	.....	.....	.....	.....	1	1	3	.....	5	.....	1	1	6	1	2	.....	.....	3	14	30	47	120	46	.....	287	318	335	883	864	389	2,850
February.	168	377	264	570	392	239	508	89	243	196	139	106	92	27	3	231	33	31	40	9	15	10	10	30	18	10	3	4	.....	.....	.....	3,805
March	17	5	.....	2	.....	.....	.....	8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	32
GRAND TOTAL.....																																	6,187

Very little information was given by the physicians concerning the first 867 cases reported. A special influenza report form was then sent to all physicians, and 5,320 cases were reported after this special form was sent out by the Director of Public Welfare. The information on these cards was summarized. The following table shows the proportion of the 5,320 cases studied, by color and sex:

Summary of 5,320 Influenza Cases Studied, Showing Color and Sex.

	WHITE			COLORED			Total
	Males	Females	Total	Males	Females	Total	
Cases.....	1,850	2,881	4,231	423	666	1,089	5,320
Per Cent. of Total.....	34.8	44.8	79.6	7.9	12.5	20.4	100

The following is a summary of the cases studied by age periods, color and sex:

Cases of Influenza Reported by Age, Color and Sex, 1920.

AGE	WHITE		COLORED		Total
	Male	Female	Male	Female	
Under 1 year.....	58	68	15	14	155
1 to 5 years.....	204	191	32	37	464
5 to 10 years.....	220	204	29	45	498
10 to 15 years.....	115	122	17	18	270
15 to 20 years.....	118	208	34	65	420
20 to 30 years.....	397	699	105	231	1,432
30 to 40 years.....	392	461	113	133	1,099
40 to 60 years.....	291	339	66	109	806
Over 60 years.....	42	57	7	7	113
Not stated.....	13	37	5	9	64
Total.....	1,850	2,881	423	666	5,320

An attempt was made to secure information as to the types of disease. A special report form requesting information as to whether the physician regarded the patient as suffering from severe influenza, or "flu," as it was ordinarily called, similar to that of the 1918 outbreak, or if the case was what is ordinarily called influenza occurring years when there is an absence of severe outbreaks such as that of 1918, or whether the type was similar to an ordinary cold. The following table shows the classification as given by the physicians in charge of the patients:

	WHITE			COLORED			Total
	Male	Female	Total	Male	Female	Total	
"Flu".....	665	857	1,522	173	265	438	1,960
Influenza.....	1,015	1,343	2,358	203	344	547	2,905
Cold.....	155	170	325	44	50	94	419
Not Stated.....	15	21	26	3	7	10	36
Total.....	1,850	2,381	4,231	423	666	1,089	5,320

The following table shows the deaths and death rates, by color and sex, from influenza, bronchopneumonia and lobar pneumonia during 1920:

Deaths and Death Rates by Color and Sex from Influenza, Bronchopneumonia and Lobar Pneumonia, 1920.

	WHITE				COLORED				TOTAL	
	DEATHS			Death Rate Per 100,000 Population	DEATHS			Death Rate Per 100,000 Population	Deaths	Death Rate Per 100,000 Population
	Males	Females	Total		Males	Females	Total			
Influenza.....	27	22	49	41.2	17	23	45	83.1	94	54.3
Broncho-Pneumonia....	23	18	41	34.5	53	38	91	168.1	132	76.3
Lobar Pneumonia.....	43	37	80	67.3	58	50	108	199.5	188	108.7
Total.....	93	77	170	143.0	128	116	244	450.7	414	239.3

BUBONIC PLAGUE.

Bubonic plague has been present in the rat population of New Orleans, La., since 1912. In 1914 there was a decided outbreak of the disease among the people of New Orleans. The U. S. Public Health Service then took charge of the situation and the disease has been held in check until the latter part of 1919, when it reappeared. During June, 1920, bubonic plague appeared in several other Southern cities, including Pensacola, Fla., and Galveston and Beaumont, Texas.

Upon noting from newspaper reports that bubonic plague had appeared at Pensacola, Fla., the Director of Public Welfare requested a special appropriation of \$5,000 from the City Council for rat eradication in Richmond, and \$2,500 was appropriated for this purpose. Preparations were made at once to begin work. Since the poisoning demonstration put on in 1919 had shown such excellent results in rat destruction, it was decided to use barium carbonate as a rat poison and to attempt

rat killing by the use of this poison rather than by trapping or rat proofing. A special carton with directions telling how to use barium carbonate printed on the outside was prepared, and a large quantity of barium carbonate ordered. Two bulletins—one on "Rat Proofing" and another on "Four Reasons for Killing Rats," telling how to use barium carbonate, were prepared by the Director of Public Welfare.

A meeting of State and City health officers was called by the Surgeon General of the U. S. Public Health Service, to be held in Galveston, Texas, Tuesday and Wednesday, August 3rd and 4th. Mr. A. H. Straus, City Bacteriologist, and the Health Officer were detailed to attend this meeting as representatives of the Richmond Health Department. On our way to Galveston we stopped one day in New Orleans and visited the City Laboratory and headquarters of the U. S. Public Health Service, and went over the work which had been done in that city. On Tuesday, August 3rd, we attended the meeting of State and City health officers in Galveston and heard the discussion on rat eradication methods. Wednesday, August 4th, was spent in Galveston, and we were fortunate in being able to see two new cases of bubonic plague which developed on that day, and to study the symptoms and diagnostic methods. We were also able to make a study of rat proofing and rat trapping methods, which had been put in force at Galveston by the U. S. Public Health Service. On Friday, August 5th, we visited Beaumont, Texas, and saw two more cases of plague and studied the work being done in Beaumont.

While bubonic plague is apparently under control at the present time in the rat population of these cities, we do not know at what time it may appear elsewhere.

The distribution of barium carbonate was begun immediately after the return of the Health Officer from the Galveston meeting. The daily newspapers carried a number of articles telling about the use of barium carbonate for killing rats, and warning people of bubonic plague menace. The Mayor issued a special proclamation advising every one to assist in killing rats. Two men were employed and placed in charge of one sanitary officer and detailed to demonstrate the use of barium carbonate in the wholesale produce district. This demonstration was a decided success. Practically every one reported the disappearance of rats from their premises after the use of the poison. A large number of calls were made at the Health Bureau for packages of barium carbonate, more than 2,000 pounds being distributed during August and September.

As the interest in rat killing had somewhat declined, owing to the pressure of office work during the diphtheria outbreak and our inability to devote much time to it, Mr. H. R. Hughes was engaged to conduct a special rat eradication campaign during the months of November and December. Two new bulletins were prepared, one for use in the primary grades of the public schools and the other for use in the older grades. Several thousand additional copies of the bulletins on rat killing and rat proofing were also printed. Articles were prepared for newspapers, and it was decided to conduct a special rat killing week to begin December 6th-11th, to be known as "Kill the Rat Week." A letter was sent to all retail grocers and all clergymen asking their co-operation in the campaign. A number of newspaper articles bearing on rat killing

were published preceding "Kill the Rat Week." During this week a number of addresses were made by the Director of Public Welfare, including one at the Kiwanis Club and one at the Builders' Exchange. Addresses were also made to the school children in all the public schools, and approximately 30,000 pamphlets prepared for the school children were distributed. Two slides were run in all the moving picture theaters and a placard advising people to kill rats was placed in store windows by the Boy Scouts. A street banner was placed across Broad Street advising people to kill the rat. Barium carbonate was distributed from the Health Bureau and from all fire stations, through the courtesy of the Director of Public Safety, and also from a number of grocery stores by members of the Mothers' Club.

Nearly 5,000 pounds of barium carbonate were distributed during the entire campaign, beginning in August. An investigation in the wholesale district revealed an almost total absence of rats from stores which had previously been infested. Nearly one hundred homes in the Western section of the City where barium carbonate had been used were visited by Mr. Hughes, and it was found in practically every instance that rats had disappeared from the premises following the use of barium carbonate. A return card to show the results secured by the use of barium carbonate was prepared and distributed with each package of the poison. Only a small number of these cards were returned, but the returns indicated an average of six dead rats found per package of barium carbonate distributed. It was estimated by Mr. Hughes that at least 135,000 rats were killed during the entire campaign.

It is necessary that we continue the war against rats, as they breed very rapidly. It is not only an economic measure—as rats are very destructive—but bubonic plague may appear in this vicinity at any time.

INFANTILE DIARRHEA.

There was a slight increase in the death rate from diarrhea and enteritis (under 2 years) during 1920, the rate for 1920 being 39.3 against 34.6 for the year 1919. The death rate among negro babies from this cause was more than double that among white infants, the rate among whites being 28.6 per 100,000, while among negro babies the rate was 62.8 per 100,000. One of the causes of this increase was that there were actually more births during 1920 than in 1919, as may be seen in the table showing births. There were probably a few more deaths attributed to causes classified under the general heading "Diarrhea and Enteritis" (104), of the International Classification, during 1920 than 1919, and which were really not diarrhea. A number of the deaths belonged to this class.

The following table shows the deaths and death rates from diarrhea and enteritis for each year since 1906:



Deaths from Infantile Diarrhea (Under Two Years).

YEAR	NUMBER OF DEATHS	DEATH RATE PER 100,000 INHABITANTS
1907.....	161	142.0
1908.....	140	122.0
1909.....	147	126.5
1910.....	169	131.8
1911.....	196	149.8
Annual Average.....	163	134.4
1912.....	132	98.8
1913.....	112	82.2
1914.....	97	69.8
1915.....	101	63.3
1916.....	102	62.9
Annual Average.....	109	75.4
1917.....	113	68.5
1918.....	82	48.9
1919.....	59	34.6
1920.....	68	39.3
Annual Average 1917-1920—(last 4 years).....	80	47.8

The following table shows the average number of deaths and the annual average death rate from infantile diarrhea in Richmond since 1910 arranged in five-year groups:

Comparison of the Annual Death Rate from Infantile Diarrhea in Richmond During the Five-Year Period, 1911-1915, and the Five-Year Period, 1916-1920.

	FIVE-YEAR PERIOD 1911-1915, Inclusive	FIVE-YEAR PERIOD 1916-1920, Inclusive
Annual average.....	92.8	50.8
Highest year.....	149.8	63.5
Lowest year.....	63.3	34.6

The accompanying chart shows in graphic form the great reduction in the death rates from diarrhea in infants under two years of age since the recognition of the importance of prevention of infection by proper care of all infants' stools in 1911:

The methods used by the nurses during 1920 were the same as have been used since late in the fall of 1911, when the Health Officer came to the conclusion that diarrhea, being an infectious disease, could be prevented by the proper care of infectious material. In order to do this, it was decided that the excreta of all babies in the community should be properly cared for so as to eliminate the danger from carrier cases. Special attention was given to instruction in reference to disinfection and care of infant stools, protection of the napkins from flies, protection of infant foods from fly infection, and also keeping flies away from the infants. Mothers were urged to boil water used by infants where the water was obtained from a well or spring. They were also

urged to take babies suffering from diarrhea to one of the clinics or to carry them to the hospital. Where this was not done the patients were turned over to the Instructive Visiting Nurse Association for bedside care.

INFANT MORTALITY—ALL CAUSES.

There was an increase in both the deaths and death rates during 1920 of infants under one year of age—478 deaths from all causes being reported in 1920, an increase of 60 over the preceding year. The deaths among colored infants were much higher in proportion to the population than among white infants—224 deaths of white babies being reported during the year and 254 deaths of negro babies, the white population being more than twice the colored.

The following table gives a summary of the deaths and death rates of infants under one year of age since 1906:

Deaths of Infants Under One Year of Age.

YEAR	Number of Deaths	DEATH RATE		Percentage of Deaths at All Ages
		Per 1,000 Births	Per 1,000 Population	
1907.....	491	213	4.33	18.5
1908.....	580	189	4.62	21.3
1909.....	525	185	4.52	21.8
1910.....	623	228	4.86	21.6
1911.....	534	181	4.08	19.7
1912.....	528	172	3.95	19.5
1913.....	508	162	3.73	18.7
1914.....	509	161	3.66	19.1
1915.....	442	127	2.77	15.1
1916.....	533	137	3.28	17.2
1917.....	516	134	3.13	17.5
1918.....	563	146	3.38	14.7
1919.....	418	104	2.45	15.7
1920.....	478	109	2.76	16.8

CHILD WELFARE STATIONS.

One new Child Welfare Station, at the corner of Harrison and Cary Streets, was opened during the year, the work being conducted jointly by the Health Bureau and the Instructive Visiting Nurse Association. The work at the Venable Street Clinic and the Clinic at the City Home increased during the year, as may be seen by reference to the report of Miss Friend, Supervising Nurse. These clinics are doing excellent work, the Venable Street Clinic and the Clinic at the City Home being in charge of Dr. John S. Weitzel and the new Clinic opened on Cary Street being in charge of Dr. Henry S. Stern.

MATERNITY CLINICS.

Two clinics giving prenatal examinations and instructions to prospective mothers were opened during 1920, one in connection with the Instructive Visiting Nurse Association Clinic on Cary Street and the

other at the Church Hill Clinic—Dr. Joseph Bear being in charge of the Church Hill Clinic and Dr. M. P. Rucker in charge of the Clinic on Cary Street. These clinics have only been in operation a short time, but are showing good results. The need for work of this kind is apparent, from the fact that 25 white and 27 negro mothers died from puerperal causes during 1920, the white death rate being 21 per 100,000 population and the colored 49.9 per 100,000. There were 2,933 births of white infants reported during the year, giving a maternal mortality of one death to 129 births. There were 1,147 births of negro babies during 1920, giving a mortality of one maternal death to every 42 births, or about three times the maternal mortality of the white race.

MIDWIFE SUPERVISION.

Most of the births among negroes are attended by midwives, many of whom belong to the most ignorant class, understanding very little about the importance of thorough cleanliness in handling these cases. One midwife was found attending births suffering from syphilitic infection of the thumb, obtained from a previous patient. Not only is the maternal death rate high among such cases, but the infant death rate is also high. We trust a system of midwife supervision may be started during 1921.

MATERNITY AND INFANT HOMES.

Some trouble was experienced during 1920 with infant homes and maternity homes handling illegitimate children. One of these, a negro institution located in Fulton, was closed during the year owing to poor sanitary conditions, which were not corrected after several notices. It was also necessary to close one white home which had been receiving illegitimate babies, owing to the very high proportion of deaths—15 babies out of a total of 48 handled in the institution having died during the early months of the year. The owner of this home first gave up her permit and notified the Health Bureau that she had ceased to conduct an infants' home. It was later found that she was still receiving infants, and she was given a choice of closing or going to court and decided to close.

LEPER.

The leper, Georgus Hartzolakis, who came to Richmond in 1916, is still isolated in the quarters established at that time near the small-pox hospital. He was given a course of Chaulmugra Oil injections during 1919 with very little apparent benefit. Application has been made to the Surgeon General of the U. S. Public Health Service for admission to the Leper Colony soon to be established by the U. S. Public Health Service at Carville, La., and we certainly hope the City may soon be rid of the expense incident to his maintenance.

COMPARATIVE MORTALITY OF WHITE AND COLORED RACES.

The colored race, as usual, showed a considerably higher total death rate during 1920 than did the white race, the colored death rate being 2,331 per 100,000 population, while the white rate from all causes was

1,334 per 100,000 population. If the deaths of non-residents be excluded and only the death rates of residents be taken into consideration, the City white death rate would have been 1,152 per 100,000 and the negro death rate 2,202. The colored death rate was .91 times higher than the white rate. This was the highest excess of colored over white rate since 1914.

Table Showing Comparative Mortality of the White and Colored Races from Certain Causes in Richmond, Va., During 1920.

CAUSES OF DEATH	No. of Deaths		Death Rate Per 100,000		Ratio of Colored Death-Rate to White
	White	Col'd	White	Col'd	
Typhoid Fever—					
Including non-residents.....	7	4	5.9	7.4	1.25
Residents only.....	5	2	4.2	5.7	.88
Malarial Fever.....	2	1	1.7	1.8	1.06
Measles.....	7	3	5.9	5.5	.93
Scarlet Fever.....	0	0			
Whooping Cough.....	8	32	6.7	59.1	8.82
Diphtheria (including croup).....	16	4	13.5	7.3	.54
Influenza.....	49	45	41.2	38.1	2.02
Dysentery.....	1	0	.8		
Tetanus.....	1	1	.8	1.8	2.25
Pellagra.....	3	3	2.5	5.5	2.20
Consumption.....	113	112	95.1	206.9	2.18
Other forms of tuberculosis.....	22	22	18.5	40.6	2.19
Syphilis.....	15	29	12.6	53.6	4.25
Cancer (of all organs)—					
Non-residents included.....	93	49	78.2	90.5	1.16
Residents only.....	76	44	63.9	81.3	1.27
Diabetes.....	21	8	17.7	14.8	.84
Apoplexy.....	117	103	98.4	190.2	1.93
Other diseases of the nervous system.....	66	44	47.1	81.3	1.73
Organic heart disease.....	197	93	165.7	171.8	1.04
Bright's disease.....	163	64	137.1	118.2	.86
Heart and Bright's disease combined.....	360	157	302.9	290.0	.96
Pneumonia (lobar or unqualified).....	80	106	67.3	199.5	2.96
Bronchopneumonia.....	41	91	34.5	168.1	4.87
Lobar and Bronchopneumonia combined.....	121	199	101.8	367.6	3.61
All diseases of the respiratory system—(consumption not included); that is Group IV of the International Classification.....	152	233	127.9	430.4	3.36
Diarrhea (under 2 years).....	34	34	28.6	62.8	2.20
Diarrhea (over 2 years).....	8	11	6.7	20.3	3.03
Appendicitis—					
Including non-residents.....	26	14	21.9	25.9	1.18
Residents only.....	12	11	10.1	20.3	2.01
Diseases of the puerperal state.....	25	27	21.0	49.9	2.38
Congenital debility.....	90	73	75.7	134.8	1.78
Senile debility.....	22	7	18.5	12.9	.70
Legal electrocution.....	0	1	0.0	1.8	
Suicide.....	13	0	10.9	0.0	
All other violent deaths.....	78	62	65.6	114.5	1.75
Ill-defined or unknown.....	9	30	7.6	55.4	7.29
Total deaths, all causes—					
Including non-residents.....	1,586	1,262	1,334	2,331	1.75
Residents only.....	1,368	1,192	1,152	2,202	1.91

All rates in this table are calculated from the official estimate of the United States Bureau of the Census of the 1920 mid-year population, based on the census of January 1, 1920.

The negro death rate from communicable disease, with the exception of diphtheria and measles, was much higher than the white race, the white rate for diphtheria being 13.5 per 100,000 population, and a rate of 7.3 for the negro race, while measles showed a rate of 5.9 for whites and 5.5 for negroes. The negro infantile diarrhea death rate

was much higher than the white rate, the diarrhea death rate (under 2 years) being 28.6 per 100,000 population for whites and 62.8 for negroes. The death rates from all respiratory diseases was much higher among negroes, whooping cough showing a rate of 59.1 per 100,000 among negroes and a rate of 6.7 per 100,000 for the white race. The influenza death rate was 41.2 for whites and 83.1 for negroes. Consumption showed the respective rates of 95.1 white and 206.9 negro. The tuberculosis death rate among negroes, however, has shown a very steady improvement in recent years.

BIRTHS.

Both the total number of births and the birth rate were the highest in 1920 that have been recorded in recent years, the total number of births being 4,378, of which 2,923 were white and 1,455 negro. The total birth rate for the year was 25.31 per 1,000 population—the white rate being 24.59 per 1,000 and the negro rate 26.87 per 1,000, the negro rate surpassing that of the white race for the first time.

An effort was made during 1920 to secure complete birth returns. An investigation early in the year revealed that the average time when birth certificates were filed with the Health Bureau was between two and three months after the physician attended the birth. A letter was sent to all physicians and midwives in Richmond notifying them that the State law required that reports of births be made within ten days after attendance. An office record was made of all births attended by physicians, by months, thus showing when a physician failed to report any births. A card was sent to physicians and midwives showing the number of births which they had reported during previous months and calling their attention to the importance of making complete birth reports. Birth returns are now received more promptly.

Year.	Number of Births Reported.	Reported Birth Rate Per 1,000.
1900*	818	9.61
1901	729	8.42
1902	752	8.55
1903	666	7.46
1904	636	7.02
1905	608	6.61
1906†	1,133	12.13
1907	2,311	20.37
1908	2,806	24.44
1909	2,839	24.44
1910‡	2,734	21.33
1911	2,940	22.47
1912	3,069	22.98
1913	3,135	23.01
1914‡	3,155	22.71
1915	3,473	21.76
1916	3,902	24.04
1917	3,837	23.26
1918	3,848	22.95
1919	4,015	23.57
1920	4,378	25.31

* The present ordinance requiring the reporting of births went into effect in 1900.

† Health Department reorganized July 1, 1906.

‡ Annexation of new territory in each of these years.

CITY LABORATORY.

The City Bacteriological Laboratory is one of the most valuable divisions of the Health Bureau. This work is now conducted by Mr. A. H. Straus, former City Bacteriologist, on contract. The number of specimens examined in 1920 was almost twice as many as were examined in 1919.

The following table shows the increase both in the kind of examinations offered and in the number of specimens examined each year since the opening of the Laboratory in 1906.

Examinations Made by the City Laboratory, 1906-1920.

YEAR	TYPHOID AND PARA TYPHOID FEVER						DIPHTHERIA		Malaria	Tuberculosis	Wassermann	Smears for Gonococci	Typing Pneumococci	Spinal Fluids	Smears Vincent's Angina	Other Diagnostic Examinations	Water Examinations	Bacteria Counts In Milk	Total	
	Agglutination	Diazza	Blood Cultures	Macroscopic Agglutination	Stool Examinations	Total	Diagnosis	Release												Total
1906	443	72	.....	.....	.....	515	199	159	358	433	.....	.....	.....	.....	.....	.....	.....	707	1,306
1907	684	254	.....	.....	.....	939	352	238	600	840	.....	.....	.....	.....	.....	.....	.....	913	3,086
1908	535	203	.....	.....	.....	738	472	631	1,163	840	.....	.....	.....	.....	.....	.....	.....	1,018	3,654
1909	563	133	.....	.....	.....	699	639	649	1,318	883	.....	.....	.....	.....	.....	.....	.....	1,018	3,975
1910	407	64	.....	.....	.....	471	645	823	1,668	905	.....	.....	.....	.....	.....	.....	74	1,610	4,816
1911	322	63	.....	.....	.....	393	832	967	1,799	73	.....	.....	.....	.....	.....	.....	.....	1,685	4,755
1912	344	37	.....	.....	.....	421	1,007	691	1,698	108	.....	.....	.....	.....	.....	.....	.....	1,683	4,635
1913	443	88	.....	.....	.....	535	928	498	1,426	808	.....	.....	.....	.....	.....	.....	.....	1,622	4,539
1914	379	33	.....	.....	.....	533	1,423	757	2,180	132	.....	.....	.....	.....	.....	.....	.....	1,731	7,597
1915	583	14	.....	.....	.....	597	1,423	757	2,180	80	.....	.....	.....	.....	.....	.....	.....	1,731	7,597
1916	586	12	.....	.....	.....	598	1,423	757	2,180	707	.....	.....	.....	.....	.....	.....	.....	1,731	7,597
1917	273	2	.....	.....	.....	914	1,581	565	2,146	863	.....	.....	.....	.....	.....	.....	.....	1,731	7,597
1918	226	123	.....	.....	.....	398	1,866	999	2,865	796	.....	.....	.....	.....	.....	.....	.....	1,731	7,597
1919	170	110	.....	.....	.....	288	612	817	2,865	186	.....	.....	.....	.....	.....	.....	.....	1,731	7,597
1920	57	182	.....	.....	.....	290	1,155	1,302	2,457	113	.....	.....	.....	.....	.....	.....	.....	1,731	7,597
			.....	.....	.....	390	5,165	2,357	7,622	80	.....	.....	.....	.....	.....	.....	.....	1,731	7,597

The work of the Laboratory was particularly heavy in 1920 on account of the enormous number of diphtheria cultures which were examined, and also on account of the increase in the Wassermann tests made. One very important change in the Laboratory routine during the year was the change from the microscopic Widal to the macroscopic Widal. The typing of pneumococci from sputum was also begun during 1920, and the examination of stool cultures was added to the list. The Laboratory also added direct smears for Vincent's angina to the list of examinations already offered.

Physicians should acquaint themselves with the examinations offered in the above table and should avail themselves of the Laboratory facilities.

DAIRY INSPECTION.

The work of the Dairy Inspection Division was very satisfactory. This Division has maintained a high dairy standard for a number of years. This supervision has placed Richmond's milk supply ahead of most cities of similar size in the United States.

The following table shows the percentage of all dairy farms in various classes since the beginning of this work in May, 1907.

Table Showing the Percentage of Dairy Farms in the Various Classes from May, 1907, through December, 1920—Summary by Years.

CLASS	PERCENTAGE OF ALL DAIRY FARMS INSPECTED DURING THE YEAR WHICH FELL IN EACH CLASS													
	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920
Scoring below 30.....	6.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Scoring 30-40.....	13.2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Scoring 40-50.....	26.3	0.2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Scoring 50-60.....	30.1	3.2	0.3	.....	.....	.....	.....	.....	1.9	2	.....	.....	1	.....
Scoring 60-70.....	18.3	27.6	20.8	2.5	.....	.....	.....	.....	33.8	13.9	1.2	6.1	10.2	5.9
Scoring 70-80.....	5.2	43.1	51.7	47.4	40.4	23.8	17.0	16.9	52.3	65.8	78.3	75.0	70.1	73.1
Scoring 80-90.....	0.9	23.1	23.1	42.4	55.2	72.9	79.2	80.2	9.8	17.6	17.5	16.4	18.1	19.8
Scoring 90-100.....	.....	2.8	4.1	7.7	4.4	3.3	3.3	2.9	2.2	2.5	3.0	2.5	1.5	1.2
Average of all scores for the year.....	50.4	74.1	75.8	80.5	81.3	82.5	82.8	82.8	*72.2	75.4	76.9	75.9	76.1	75.5

* The decrease in the 1915 average score was due to the adoption of a new score card.

As will be noted from the above table, there was a slight improvement in the average dairy score during the year, the average score being increased from 75.1 to 75.5. The following table shows the percentage of dairy farms scoring in the various classes for each month during 1920:

Table Showing the Percentage of Dairy Farms in the Various Classes from May, 1907, through December, 1920— Summary by Years.

CLASS	PERCENTAGE OF ALL DAIRY FARMS INSPECTED FOR THE MONTH WHICH FELL IN EACH CLASS DURING 1920											
	Jan.	Feb.	Mch.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Scoring 50-60.....	7.1	7.2	6.6	4.2	7.2	2.6	8.1	8.3	5.9	6.3	8	.....
Scoring 60-70.....	75.2	75.3	70.1	76.5	72.2	78.5	70.8	73.3	69.7	72.8	71.9	64.9
Scoring 70-80.....	16.8	16.5	28.3	18.5	20.6	17.2	19.5	17.5	23.5	19.2	20.7	22.8
Scoring 80-90.....	.9	1.0	.....	.8	.....	1.7	1.6	.9	.9	1.7	1.7	5.2
Scoring 90-100.....												
Average of all scores for the month.....	75.3	74.6	75.3	75.5	75.8	75.8	75.6	75.5	75.5	75.5	75.5	75.7

The dairies are moving farther from the City limits. In 1909 only 6.5 of our milk supply was obtained from dairies located more than twelve miles from the City limits. A large part of our dairies are now located near the railroads at considerable distances. This means more time for inspection and more expense if our standards are to be maintained.

For further information concerning the various phases of dairy inspection work during 1920, the reader is referred to the excellent report of Mr. T. J. Strauch, Chief Dairy Inspector.

VENEREAL DISEASE CLINIC.

The Venereal Disease Clinic which had been conducted in the dispensary of the Medical College of Virginia by an officer appointed by the U. S. Public Health Service was discontinued July 1, 1920, and an arrangement was made whereby all City venereal disease patients are treated at the Medical College of Virginia Dispensary by the Dispensary staff. The following table shows the work of the Venereal Disease Clinic for eleven months of 1920, the month of August having been omitted on account of the failure of the Medical College Dispensary staff to keep a record of treatments for that month:

MONTH	NEW CASES					LABORATORY EXAMINATIONS				TREATMENTS		
	Syphilis	Gonorrhoea	Chancroid	Fourth Venereal Dis.	Negative Diagnosis	Total	Wassermann Tests	Smear Examinations	Total	Doses "606" Administered	Other Treatments	Total
January	137	21	7	0	59	224	276	276	552	352	1,004	1,356*
February	68	23	4	0	50	145	98	106	204	303	557	860*
March	67	17	1	0	47	132	102	148	250	544	688	1,232*
April	63	24	5	3	0	95	245	81	326	525	1,286	1,811*
May	40	9	1	1	49	100	140	18	158	465	520	985*
June	49	8	2	0	32	91	140	10	150	460	229	689*
July	64	14	0	0	192	270	241	64	305	314	273	587
August												†
September	100	46	0	0	219	365	322	83	405	184	606	790
October	49	53	0	0	211	313	278	88	366	226	548	774
November	22	25	0	0	212	259	230	95	325	319	571	890
December	17	20	1	0	279	317	175	84	259	226	753	979
Total	676	260	21	4	1,350	2,311	2,247	1,053	3,300	3,918	7,035	10,953

* Includes treatments at City Jail and Bon Air School given by Dr. Driscoll.

† No report of Clinic made for August.

As may be seen from this table, the new cases of syphilis each month for the first six months averaged 70.7; the new cases of gonorrhoea during the same time averaged 17 each month, and the total monthly average of new patients was 91.7. The average number of doses of "606" given during the first six months, while the Clinic was under the U. S. Public Health Service, was 441.5; the average number of treatments was 1,155.6. These included all treatments given at the City Jail. During the five months since the change in conduct of the Clinic, the average number of new patients has been—syphilis, 50.4; gonorrhoea, 31.6; total, 82; and the total treatments have averaged 804 per month, while an average of 254 doses of "606" have been given per month, thus showing some decline in the total number of treatments and also in doses of "606" administered. However, as will be noticed from the above table, there has been a gradual increase in the total treatments given at the Clinic since its reorganization.

It was also necessary to reorganize the work at the City Jail, and Dr. T. L. Driscoll was employed for this work. A summary of the work at the Jail will be found in the report of Mr. W. A. Bowry, Chief Sanitary Officer.

The Venereal Disease Clinic has been doing excellent work in providing up-to-date, modern treatment for a class of people who are unable to pay full expenses of such treatment. It is a work that should be extended, as many of the deaths from degenerative troubles in old age and much sickness, loss of time and suffering can thereby be prevented. These diseases are very dangerous to the public and should be regarded in the same class with other communicable diseases.

ANTI-RABIC TREATMENT.

For several years the State Health Department has been giving the Pasteur treatment for the prevention of rabies. Notice was given in December that this work would be discontinued January 1, 1921. As a number of people are bitten each year by rabid animals in Richmond, it is necessary that some arrangement be continued whereby there may be no delay in starting this treatment. The Health Bureau has made arrangements for ordering the treatment.

CITY WATER.

During June the City water, which had previously shown no colon bacilli in ten cubic centimeters, began to show positive tests in that quantity, and the Health Officer was directed by the Director of Public Welfare to investigate the matter. It was found that the water going from the sedimentation basins to the pumps to be carried to the reservoir was not being properly clarified. It was also found that the Superintendent of the Water Works had not been able to secure a sufficient supply of alum and the stock was running low. A report was immediately made to the Director of Public Welfare and he communicated with the Director of Public Utilities and the State Sanitary Engineer, Mr. Messer. Letters were immediately sent to the Surgeon General of the U. S. Public Health Service and to the Dupont de Nemours Company, from whom the alum had been secured, urging them to forward a supply of alum at once. This shortage continued for some time, but fortunately a car of alum arrived just before the previous stock was exhausted.

As has been pointed out in previous reports of the Health Bureau, the City is in need of a complete revision of its water supply. During the summer months, when the demand for water is very great, there is not sufficient time for complete sedimentation, and without complete sedimentation liquid chlorine added later to the water will not sterilize it.

CHANGES IN STAFF.

A number of changes were made in the staff during the year 1920. These changes were most frequent in the nursing corps, where adequate salary increases had not been made. Miss Hattie Crist, Miss M. B. Campbell, Miss Winifred Moxon and Miss Ethel Snedaker resigned during the year, and Miss Marie Daly was given a leave of absence on account of sickness and has not been able to return. Their places were taken by Misses Mabel Rice, Theresa Childress, Carolyn Roller and Mrs. Mary McConnell; while Miss O. V. Coffee, who had been doing temporary duty, was transferred to a permanent position with the Health Bureau.

Mr. R. W. White, clerk, resigned on November 15th to take another position. His position was filled by the transfer of Mr. D. Fergusson from the Public Employment Bureau to the Health Bureau.

DEATH OF MR. NOBLE.

Mr. E. M. Noble, Chief Food Inspector, died October 29, 1920. Mr. Noble developed a cerebral hemorrhage while on duty and died the same

evening. Mr. Noble began work with the Health Department on May 1, 1907, as Assistant Food Inspector. He became Chief Food Inspector February, 1911, upon the death of Mr. W. T. Holdsworth, and had held the position since that time. Mr. Noble was an honest, capable, upright officer, and was well liked by all his associates in the office and by the public generally with whom he came in contact. As an officer he was thoroughly conscientious in the discharge of his duties. Every member of the Health Bureau regrets his loss.

Dr. C. B. Banks, a veterinary surgeon, has been appointed to fill the vacancy caused by Mr. Noble's death.

CONCLUSION.

The Health Officer desires to express his very great appreciation of the very thoughtful consideration given by the Director of Public Welfare to the many questions which it has been necessary to bring to his attention. His very great interest in the work of the Health Bureau and very kind assistance and direction has made the work a real pleasure.

Respectfully submitted,

C. C. HUDSON, M. D.,
Health Officer.

FINANCIAL STATEMENT—SUMMARY.

Payroll—Health Bureau	\$65,361 57
Expense—Health Bureau	15,985 88
Payroll—Influenza epidemic	882 34
Expense—Influenza epidemic	743 80
Rat eradication	2,387 89
Total disbursements	\$85,361 26
Reimbursements:	
Food permits	\$ 632 00
Plumbing permits	72 00
Sale of horse (Smallpox Hospital)	32 15
Total reimbursements	\$ 736 15
Net cost of maintenance of Health Bureau, fiscal year 1920..	\$84,625 11

FINANCIAL STATEMENT FISCAL YEAR 1920.

Administration:

Salary Health Officer	\$ 3,941 66
Salary Chief Clerk	1,950 13
Salary Clerk	1,699 83
Salary Stenographer	1,493 75
Salary District Physicians (5)	7,487 50
Services of Physician (Influenza 1918)	150 00
Stationery and Printing	1,218 51
Postage	191 64
Telephones	50 13
Educational	23 53
Advertising	35 91
Ice	42 38
Traveling expenses	332 82
Automobile (Health Officer)	837 62
Gasoline and oil	119 16
Repairs	25 37
Tires	85 67
Insurance (auto)	37 00
Washing and caring for auto	121 61
Transportation, freight and drayage (including moving cots—Emergency Hospital)	70 82
Typewriter (replacement)	57 25
Typewriter supplies	4 50
Mimeograph and mimeoscope	120 00
Buttons for uniforms	49 20
Drinking cups	30 00
Map rack (office)	10 25
Wrapping paper	8 73
Material for fly traps	9 55

Chair bottoms	12 44
Diarrhea chart	10 00
Lettering blackboard	15 00
Fitting up office for Dairy and Food Division....	193 18
Fitting keys	3 00
Sundries	24 51
	<hr/> \$20,462 65

ACUTE CONTAGIOUS DISEASES.

Salary Medical Inspector	\$ 2,310 00
Salary Medical Inspector (substitute).....	58 05
Salary extra nurse	235 00
Diphtheria antitoxin	2,499 70
Diphtheria intubation	239 00
Stationery and printing	104 25
Drugs and medicines	4 00
Hospital and surgical supplies.....	52 05
Washing and caring for auto.....	121 61
Gasoline and oil	140 41
Repairs	70 47
Tires	89 93
Insurance (auto)	37 00
Food—quarantine patients	69 00
Disinfectants	87 10
	<hr/> \$ 6,117 57

LABORATORY.

Salary Bacteriologist	\$ 2,300 00
Salary Assistant Bacteriologist.....	1,693 00
Salary Laboratory boy	5 00
Chemicals and supplies (contract).....	1,200 00
Stationery and printing	70 00
Culture boxes	100 13
	<hr/> \$ 5,368 13

SMALLPOX.

Salary Custodian Smallpox Hospital	\$ 888 50
Smallpox consultant	45 00
Extra help	164 25
Drugs and medicines	50 93
Bedding	40 21
Food supplies	162 35
Telephone	93 78
Transportation—patients to hospital	7 00
Laundry	31 32
Household supplies	4 00
Repairs	45 87
	<hr/> \$ 1,533 21

LEPER.

Drugs and medicines	\$ 60 43	
Food supplies	269 19	
Household supplies	2 30	
Clothing	25 50	
	<hr/>	\$ 357 42

SPECIAL VACCINATION.

Services of vaccinators.....	\$ 24 00	
Smallpox vaccine	437 05	
Typhoid vaccine	5 70	
	<hr/>	\$ 466 75

INFANT WELFARE.

Salary nurses	\$ 6,018 17	
Janitor service	49 39	
Drugs and medicines.....	52 14	
Hospital and surgical supplies.....	86 70	
Stationery and printing	99 82	
Rent (2431 Venable Street).....	125 00	
Water and gas	6 60	
Household supplies	125 33	
Repairs	2 25	
Laundry	34 87	
Traveling expenses (Chief Nurse)	79 16	
Repairing nurse's bag	1 75	
Scales	14 97	
Painting sign	3 50	
Sundries	3 55	
	<hr/>	\$ 6,703 20

FOOD INSPECTION.

Salary Chief Food Inspector	\$ 1,625 50	
Salary Assistant Food Inspectors (2).....	3,346 50	
Stationery and printing	43 00	
Drayage to crematory	111 50	
Buggy and harness	100 00	
Bond (Chief Food Inspector)	5 00	
	<hr/>	\$ 5,231 50

SANITARY IMPROVEMENT OF MILK SUPPLY.

Salary Chief Dairy Inspector.....	\$ 2,515 00	
Salary Assistant Dairy Inspector.....	1,673 25	
Stationery and printing	46 50	
Traveling expenses	1,623 75	
Automobile (new)	522 38	
Automobile (replacement)	471 38	
Gasoline and oil	138 90	

Tires	93 56	
Repairs	46 86	
Washing and caring for auto.....	121 62	
Insurance (auto)	37 00	
Album	4 25	
		<hr/> \$ 7,294 45

PLUMBING INSPECTION.

Salary Chief Plumbing Inspector.....	\$ 2,037 50	
Salary Assistant Plumbing Inspector.....	1,795 50	
Stationery and printing	52 00	
Traveling expenses (Chief Plumbing Inspector) ..	140 32	
Bond (Chief Plumbing Inspector)	2 50	
		<hr/> \$ 4,027 82

TUBERCULOSIS CAMPAIGN.

Salary Chief Tuberculosis Clinic	\$ 595 75	
Salary nurses	3,009 08	
Janitor service	120 00	
Stationery and printing	67 50	
Drugs and medicines	182 32	
Hospital and surgical supplies.....	64 10	
Sputum cups and holders	85 30	
Paper napkins	90 00	
Laundry	20 86	
Gas and water	43 53	
Pictures Pine Camp	99	
Traveling expenses	25 66	
		<hr/> \$ 4,305 09

SANITARY INSPECTION.

Salary Chief Sanitary Officer	\$ 1,972 50	
Salary Sanitary Officers (8)	13,386 00	
Stationery and printing	111 10	
Gasoline and oils (autos)	522 20	
Repairs (autos)	293 67	
Tires	291 75	
Washing and caring for autos (3).....	364 86	
Insurance—autos (3)	111 00	
Viaduct toll	18 85	
Oil peppermint	8 89	
Cheese cloth	2 00	
Oil cans	6 40	
		<hr/> \$17,089 22

VENEREAL DISEASE CLINIC.

Salary physician	\$ 481 67	
Salary extra physician	12 00	
Salary nurse	1,216 92	

Salary extra nurse	110 00	
Janitor service	60 00	
Stationery and printing	42 50	
Drugs and medicines	65 16	
Hospital and surgical supplies	175 14	
Operating table	85 50	
Laundry	138 38	
Index cabinet	2 95	
	<hr/>	\$ 2,390 22
Total		\$81,347 23

RAT ERADICATION.

Salaries	\$ 690 50	
Stationery, printing, boxes and postage.....	797 86	
Painting signs and sketches	202 00	
Traveling expenses Health Officer	248 25	
Barium carbonate	421 67	
Bait	16 83	
Sundries	10 78	
	<hr/>	\$ 2,387 89

INFLUENZA EPIDEMIC.

Salaries	\$ 882 34	
Expense	743 80	
	<hr/>	1,626 14

Grand total..... \$85,361 26

TABLES
AND
SUBSIDIARY REPORTS

TABLE
Showing Number of Marriage

MONTH	1911		1912		1913		1914	
	White	Colored	White	Colored	White	Colored	White	Colored
January	52	42	58	36	48	51	24	30
February	53	45	55	32	53	48	48	47
March	37	35	36	59	61	61	39	48
1st Quarter	142	122	149	127	162	160	111	125
April	84	59	82	85	66	71	102	60
May	35	47	56	50	49	65	55	49
June	72	49	98	79	99	71	95	105
2nd Quarter	191	155	236	214	214	207	252	214
July	51	53	60	65	65	54	53	54
August	58	44	65	59	54	52	60	52
September	60	46	70	84	74	75	79	85
3rd Quarter	169	143	195	208	193	181	192	191
October	90	58	90	50	91	60	105	66
November	87	53	91	84	107	64	103	95
December	101	90	102	125	95	89	106	82
4th Quarter	278	201	283	259	293	218	314	243
Total	780	621	863	808	862	761	869	773
Yearly totals	1,401		1,671		1,623		1,642	

No. 1.

Licenses Issued, 1911-1920.

1915		1916		1917		1918		1919		1920	
White	Colored	White	Colored	White	Colored	White	Colored	White	Colored	White	Colored
66 71 46	42 55 45	68 77 80	73 84 81	85 89 80	60 71 65	89 90 91	82 70 63	81 82 87	63 68 68	63 80 70	81 86 71
183	142	225	238	224	196	270	215	250	199	218	238
96 45 114	91 46 90	104 107 154	107 100 102	166 96 176	141 73 100	123 116 145	78 84 87	207 76 142	65 75 89	138 105 166	98 76 98
255	227	365	309	438	314	384	244	425	229	409	272
65 59 85	55 59 78	64 65 97	74 50 87	102 100 107	105 84 77	109 123 122	83 107 131	92 106 113	128 103 117	99 96 130	66 68 93
209	192	228	211	309	266	354	321	311	348	325	227
113 149 162	66 91 127	125 124 115	82 98 141	126 130 204	81 77 146	85 81 142	76 92 81	137 162 142	116 114 87	135 145 164	82 102 111
424	264	364	316	460	304	308	249	441	317	444	295
1,071	845	1,180	1,074	1,481	1,080	1,816	1,029	1,427	1,093	1,391	1,032
1,916		2,254		2,511		2,345		2,520		2,423	

TABLE No. 2.

*Births Reported by Months During 1920, with Sex and Color.**

MONTH	WHITE		COLORED		TOTAL		GRAND TOTAL
	Male	Female	Male	Female	Male	Female	
January	105	98	56	50	161	148	309
February	116	119	59	67	175	186	361
March	185	168	54	63	239	231	470
April	133	94	62	51	195	145	340
May	102	107	87	74	189	181	370
June	151	136	57	56	208	192	400
July	124	93	49	62	173	155	328
August	153	120	85	69	238	189	427
September	138	137	43	56	191	193	384
October	98	109	47	61	145	170	315
November	92	88	55	45	147	133	280
December	125	132	67	70	192	202	394
Total	1,522	1,401	725	730	2,247	2,131	4,378

*Stillbirths are not included in any of the tables of births or deaths.

TABLE No. 2a.

Number of Births, by Color and Sex, and Birth Rate, by Color, During, 1920.

COLOR	POPULATION (Official estimate U. S. Bureau of the Census)	NUMBER OF BIRTHS			Birth Rate Per 1,000 Inhabitants
		Male	Female	Total	
White	118,866	1,522	1,401	2,923	24.59
Colored	54,141	725	730	1,455	26.87
Total	173,007	2,247	2,131	4,378	25.81

TABLE No. 3.

Attendants at Birth.

BY WHOM REPORTED	WHITE		COLORED		TOTAL		GRAND TOTAL
	Male	Female	Male	Female	Male	Female	
Physician	1,380	1,284	286	301	1,646	1,585	3,231
Midwife	142	117	459	429	601	546	1,147
Total	1,522	1,401	725	730	2,247	2,131	4,378

TABLE No. 4.

Stillbirths by Months.

MONTH	WHITE	COLORLED	TOTAL
January.....	9	28	37
February.....	11	13	24
March.....	14	13	27
April.....	12	13	25
May.....	10	14	24
June.....	8	15	23
July.....	9	12	21
August.....	9	11	20
September.....	10	13	23
October.....	13	15	28
November.....	7	14	21
December.....	9	13	22
Total.....	121	174	295

TABLE No. 5.

Stillbirths by Years, 1911-1920.

YEAR	White	Colored	Unknown Color	Total
1911.....	87	188	0	273
1912.....	111	192	0	303
1913.....	85	185	0	270
1914.....	106	181	5	292
1915.....	92	205	1	298
1916.....	103	180	0	283
1917.....	106	164	0	270
1918.....	104	132	0	236
1919.....	125	151	0	276
1920.....	121	174	0	295

TABLE No. 6.
Cases Examined by Coroner and Assistant Coroner.

SEX	White	Colored	Unknown Color	Total
Male	111	129	6	246
Female	56	93	3	152
Unknown Sex.....	0	0	1	1
Total.....	167	222	10	399

Fetuses Viewed by Coroner.

SEX	White	Colored	Unknown Color	Total
Male	1	2	3	6
Female	0	1	1	2
Unknown Sex.....	0	0	1	1
Total.....	1	3	5	9

Stillbirths Viewed by Coroner.

SEX	White	Colored	Unknown Color	Total
Male	0	6	2	8
Female.....	1	8	1	10
Unknown Sex.....	0	0	0	0
Total.....	1	14	3	18

TABLE No. 7.
*Deaths for the Year Ending December 31, 1920, Classified by Color and Sex, and Whether Residents or Non-residents of Richmond.**

SEX	Residents of Richmond			Non-residents of Richmond			Total Number of Deaths, including Non-residents		
	White	Col'd	Total	White	Col'd	Total	White	Col'd	Total
Male	684	590	1,268	122	44	166	806	623	1,429
Female.....	684	613	1,297	96	28	122	780	639	1,419
Total.....	1,368	1,192	2,560	218	70	288	1,586	1,262	2,848

* Still Births are not included in any of the tables of births or deaths.

TABLE No. 8.
Giving Death Rate, with Non-residents Included and Excluded.

COLOR	POPULATION (U. S. Bureau of the Census)	ACTUAL NUMBER OF DEATHS		DEATH RATE PER 1,000	
		Non- residents Included	Non- residents Excluded	Non- residents Included	Non- residents Excluded
White.....	118,866	1,586	1,368	13.34	11.51
Colored.....	54,141	1,262	1,192	23.31	22.02
Total.....	173,007	2,848	2,560	16.46	14.80

TABLE No. 9.

Population of Richmond, Va., 1870-1920.

YEAR	White	Colored	Total	YEAR	White	Colored	Total
1870*	27,928	23,110	51,038	1895	50,914	32,304	83,218
1871	28,712	23,582	52,294	1896	51,290	32,294	83,584
1-72	29,496	24,054	53,550	1897	51,666	32,284	83,950
1873	30,280	24,526	54,806	1898	52,042	32,274	84,316
1874	31,064	24,998	56,062	1899	52,418	32,264	84,682
1875	31,846	25,470	57,316	1900*†	52,879	32,285	85,164
1876	32,632	25,942	58,574	1901	53,850	32,690	86,540
1877	33,416	26,414	59,830	1902	54,821	33,095	87,916
1878	34,200	26,886	61,086	1903	55,792	33,500	89,292
1879	34,984	27,358	62,342	1904	56,763	33,905	90,668
1880*	35,766	27,835	63,600	1905	57,734	34,310	92,044
1881	37,092	28,287	65,379	1906††	58,706	34,715	93,421
1882	38,419	28,739	67,158	1907†	70,429	42,984	113,413
1883	39,746	29,191	68,937	1908	71,401	43,389	114,790
1884	41,073	29,643	70,716	1909	72,373	43,794	116,167
1885	42,400	30,095	72,495	1910*††	81,421	46,765	128,186
1886	43,727	30,547	74,274	1911	84,023	46,842	130,865
1887	45,054	30,999	76,053	1912	86,624	46,920	133,544
1888	46,381	31,451	77,832	1913	89,225	46,998	136,223
1889	47,708	31,903	79,611	1914††	91,826	47,076	138,902
1890*	49,034	32,354	81,388	1915	105,856	53,751	159,607
1891	49,410	32,344	81,754	1916	108,458	53,829	162,287
1892	49,786	32,334	82,120	1917	111,060	53,907	164,967
1893	50,162	32,324	82,486	1918	113,662	53,985	167,647
1894	50,538	32,314	82,852	1919	116,264	54,063	170,327
				1920*	118,866	54,141	173,007

*Census Year.

†The population given for the census years 1900, 1910, and 1920 are midyear (July 1st) estimates. The actual census of 1900 gave a population of 85,060; that of 1910 a population of 127,628 as of June 1st and April 15th, respectively. The 1920 census gave a population of 171,667 as of January 1st. The midyear estimates for these years will be used by the Census Bureau in calculating its official vital statistics rates for these three census years.

††Annexation added a population of 18,615 on December 6, 1906; a population of 10,370 on April 15, 1910, and a population of 17,744 on November 5, 1914.

TABLE No. 10.

Civil Condition of Decedents.

CIVIL CONDITION	WHITE		COLORED		TOTAL
	Male	Female	Male	Female	
Single	337	288	336	300	1,261
Married	322	246	233	196	997
Widowed	139	241	40	135	555
Divorced	5	5	5	4	19
Unknown	3	0	9	4	16
Total	806	780	623	639	2,848

TABLE No. 11.
Nativity of Decedents.

NATIVITY	WHITE		COLORED		TOTAL
	Male	Female	Male	Female	
Virginia.....	625	680	534	553	2,342
Other parts of United States.....	130	110	67	76	383
Africa.....	0	0	1	0	1
Alsace.....	1	0	0	0	1
Austria.....	0	2	0	0	2
France.....	1	0	0	0	1
England.....	3	4	0	0	7
Germany.....	12	9	0	0	21
Greece.....	1	0	0	0	1
Ireland.....	8	7	0	0	15
Italy.....	5	3	0	0	8
Norway.....	0	1	0	0	1
Roumania.....	1	0	0	0	1
Russia.....	8	3	0	0	11
Scotland.....	0	1	0	0	1
Switzerland.....	0	1	0	0	1
Wales.....	0	1	1	0	1
West Indies.....	0	0	0	0	0
Unknown.....	11	8	20	10	49
Total.....	806	780	623	639	2 848

TABLE No. 13.
By Whom Certified.

BY WHOM CERTIFIED	WHITE		COLORED		TOTAL
	Male	Female	Male	Female	
Physician.....	695	724	494	546	2 459
Coroner.....	111	56	129	93	389
Total.....	806	780	623	639	2,848

TABLE No. 14.
Giving Mortality for Each Month of the Year, and the Relative Mortality of Each Month Reduced to a Standard of 100.

MONTH	WHITE		COLORED		TOTAL	Relative Mortality*
	Male	Female	Male	Female		
January.....	74	83	52	71	280	116
February.....	103	94	74	92	363	161
March.....	72	59	60	46	237	98
April.....	76	71	47	46	240	102
May.....	53	67	48	51	219	90
June.....	58	64	54	50	226	97
July.....	67	65	54	53	239	99
August.....	55	59	53	44	211	87
September.....	58	51	43	39	191	82
October.....	66	57	57	34	214	89
November.....	66	54	37	50	207	88
December.....	58	56	44	63	221	91
Total.....	806	780	623	639	2,848	

* The relative mortality for each month as calculated in this table takes into account the actual number of days in each month.

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TABLE No. 15.
Showing the Number of Deaths Monthly, of the Two Races, 1911-1920.

MONTH	1911		1912		1913		1914		1915		1916		1917		1918		1919		1920	
	White	Colored	White	Colored	White	Colored	White	Colored	White	Colored	White	Colored	White	Colored	White	Colored	White	Colored	White	Colored
January.....	107	114	123	136	120	131	116	148	135	146	148	131	177	159	161	129	202	139	157	123
February.....	110	88	125	107	145	90	109	110	149	115	148	116	140	117	146	122	148	95	197	166
March.....	109	140	139	114	126	117	130	138	163	120	146	143	123	123	158	113	142	106	131	106
April.....	106	100	111	108	110	110	127	120	159	111	144	125	141	107	151	98	121	75	147	93
May.....	111	119	102	91	105	112	94	113	133	102	122	129	116	104	144	102	106	88	120	99
June.....	139	111	91	99	131	146	123	124	108	123	135	129	102	129	145	103	120	81	122	104
July.....	136	137	107	152	115	112	127	112	117	103	150	127	150	115	144	121	123	103	192	107
August.....	119	101	116	106	101	112	89	97	106	97	129	127	109	123	143	117	95	98	114	97
September.....	98	105	117	113	98	100	92	93	107	107	129	113	122	100	100	108	115	74	109	83
October.....	112	117	111	108	122	84	87	104	147	107	104	121	119	93	458	326	109	86	130	91
November.....	118	110	98	110	101	102	106	96	107	91	133	95	119	96	174	121	136	88	120	87
December.....	117	99	132	99	137	91	96	107	143	114	138	110	150	103	295	146	139	85	114	107
Total.....	1,377	1,341	1,373	1,343	1,411	1,307	1,295	1,362	1,576	1,346	1,626	1,465	1,568	1,369	2,217	1,695	1,556	1,113	1,586	1,262
Grand Total.....	2,718*	2,715*	2,718*	2,653*	2,718*	2,653*	2,922*	3,001*	2,922*	3,001*	3,823*	3,823*	2,583*	2,583*	3,823*	2,669*	2,669*	2,669*	2,643*	2,643*

* Non-residents 267 in 1911; 290 in 1912; 297 in 1913; 256 in 1914; 268 in 1915; 290 in 1916; 251 in 1917; 300 in 1918; 242 in 1919, and 288 in 1920. Eliminating these, as in previous years, the total deaths were: 2,451 in 1911; 2,425 in 1912; 2,421 in 1913; 2,402 in 1914; 2,664 in 1915; 2,801 in 1916; 2,686 in 1917; 3,523 in 1918; 2,427 in 1919, and 2,560 in 1920.

TABLE No. 16.

Deaths for the Year Ending December 31, 1920, Classified by Causes, Months, Color and Sex.

CAUSES OF DEATH	MONTHS												WHITE		COLORED		Grand Total		
	Jan.	Feb.	March	April	May	June	July	August	Sept.	Oct.	Nov.	Dec.	Male	Female	Total	Male		Female	Total
I. GENERAL DISEASES.																			
1. Typhoid Fever.....	1	3					4		1	1	1		3	4	7	4	0	1	11
4. Malaria.....							1		1	1			1	1	2	0	1	1	3
6. Measles.....		2		2	2	1	1						1	6	7	1	2	3	10
8. Whooping Cough.....				3	2	1	8	7	5	4	4		4	4	8	11	21	32	40
9 Diphtheria and Croup.....	3	3		1	2				1	5	2	3	9	7	16	0	4	4	20
10 Influenza.....	12	61	9	1	4	2					1	4	27	22	49	17	28	45	94
14. Dysentery.....							1						0	1	0	0	0	1	1
18 Erysipelas.....				1									0	0	0	0	1	1	1
20. Purulent Infection and Septicemia.....	1	1		1	1	2	1	1	1				6	3	9	0	1	1	10
24 Tetanus.....	1										1		6	3	9	0	1	1	10
26. Pellagra.....				1			2						1	0	3	1	2	3	6
28. Tuberculosis of the Lungs.....	27	24	20	17	18	15	20	20	12	17	20	15	56	57	113	49	63	112	225
29. Acute Military Tuberculosis.....	1	2	3	1		2				1			3	1	4	2	6	7	11
80. Tuberculous Meningitis.....		1	1	2	1	1	1	2	1	2			2	6	8	4	4	6	12
81. Abdominal Tuberculosis.....		1			2	2	3			1	2		1	6	7	2	5	7	14
82. Pott's Disease.....											1		0	1	1	0	0	0	1
83. White Swellings.....				1									0	0	0	1	0	1	1
84. Tuberculosis of Other Organs.....	1	1		1	1		1						0	1	1	2	1	3	4
35. Disseminated Tuberculosis.....										1			1	0	1	0	0	1	1
36. Rickets.....		2		1		4	4	3	1	1			1	0	1	1	0	2	12
37. Syphilis.....	2	5	6	3	3	5	6	1	3	6	2	2	10	5	15	12	17	29	44
39. Cancer of the Buccal Cavity.....				1	1		1	1			2	2	4	0	4	3	0	3	7
40. Cancer of the Stomach and Liver.....	3	7	3	5	3	3	1	1	1	4	2	6	10	19	29	5	5	10	39
41. Cancer of the Peritoneum, Intestines, Rectum.....	1	2	2	2		1	2	1	1	1	5		6	6	12	3	3	6	18
42. Cancer of the Female Genital Organs.....																			
43. Cancer of the Breast.....	1	2	5	3	4	3	7	1	4	2	2	7	0	22	22	0	19	19	41
44. Cancer of the Skin.....		1	1			1					1	1	0	4	4	0	1	1	5
45. Cancer of Other or Unspecified Organs.....		1	1										1	1	0	1	1	1	2
46. Acute Articular Rheumatism.....	2	3	3	4	4	3	1	5	1	2	1	1	16	5	21	6	3	9	30
47. Acute Articular Rheumatism.....	1					3		1		6	1		0	2	7	1	3	4	6

48. Chronic Rheumatism and Gout.....	3	1	1	7	1	1	3	2	4	1	3	12	1	3	4	1	0	1	5
50. Diabetes.....	1	1	1	2	2	1	1	1	2	2	1	0	0	0	2	1	5	8	29
51. Exophthalmic Goitre.....	1	1	1	2	1	1	1	1	3	1	1	1	1	1	3	0	0	1	3
53. Leucæmia.....	1	1	1	1	1	1	1	1	1	1	1	3	1	1	1	1	0	0	3
54. Anaemia, Chlorosis.....	1	1	1	1	1	1	1	1	1	1	1	3	1	1	1	1	2	2	9
55. Other General Diseases.....	1	1	1	1	1	1	1	1	1	1	1	2	2	1	7	1	0	1	8
56. Alcoholism (acute or chronic).....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	1
II. DISEASES OF THE NERVOUS SYSTEM.																			
60. Encephalitis.....	1	1	1	3	1	2	1	1	1	1	1	3	5	8	1	0	1	1	9
61. Simple Meningitis.....	1	1	1	2	1	2	1	1	1	1	1	8	8	16	1	1	2	2	18
62. Locomotor Ataxia.....	1	1	1	1	1	1	1	1	1	1	1	4	4	0	0	1	1	1	5
63. Other Diseases of the Spinal Cord.....	1	1	1	1	1	1	1	1	1	1	1	1	2	1	3	1	2	3	6
64. Cerebral Hemorrhage, apoplexy.....	23	16	24	21	20	15	17	11	17	17	12	62	55	117	50	53	103	220	
65. Softening of the Brain.....	1	1	1	1	1	1	1	1	1	1	1	0	1	1	2	0	2	3	
66. Paralysis Without Specified Cause.....	1	2	1	1	2	1	1	1	1	1	1	1	3	4	4	1	5	9	
67. General Paralysis of the Insane.....	1	1	1	1	1	1	1	1	1	1	1	1	2	8	1	0	1	4	
68. Other Forms of Mental Alienation.....	1	1	1	1	1	1	1	1	1	1	1	2	0	2	0	0	0	2	
69. Epilepsy.....	1	1	1	1	1	1	1	1	1	1	1	2	2	4	1	2	3	7	
71. Convulsions of Infants.....	1	2	1	1	3	2	1	1	1	1	2	2	1	3	12	3	15	18	
73. Hysteria.....	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	1	1	1	
74. Other Diseases of the Nervous System.....	1	2	1	1	2	1	1	2	3	1	1	2	4	6	5	8	8	14	
76. Diseases of the Ears.....	1	2	1	1	1	1	1	1	1	1	1	2	0	2	1	1	2	4	
III. DISEASES OF THE CIRCULATORY SYSTEM.																			
78. Acute Endocarditis.....	1	2	2	2	1	2	2	2	2	3	27	5	2	7	1	5	6	13	
79. Organic Diseases of the Heart.....	33	25	24	33	21	27	22	24	15	16	11	96	102	197	93	54	93	290	
80. Angina Pectoris.....	4	2	1	1	3	2	1	1	3	1	2	11	4	15	3	8	6	21	
81. Diseases of the Arteries—Atherosclerosis, Aneurysm, etc.....	1	2	3	3	4	1	3	3	3	2	3	10	2	12	9	4	13	25	
82. Embolism and Thrombosis.....	1	1	1	1	1	1	1	1	1	1	2	1	6	7	1	3	4	11	
83. Diseases of the Veins.....	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	0	0	1	
84. Diseases of the Lymphatic System.....	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	0	0	1	
85. Hemorrhage—Other Diseases of the Circulatory System.....	1	1	1	1	1	1	1	1	1	1	1	2	2	2	0	0	0	4	

TABLE No. 16—Continued.

CAUSES OF DEATH	MONTHS												WHITE		COLORED		Grand Total		
	Jan.	Feb.	March	April	May	June	July	August	Sept.	Oct.	Nov.	Dec.	Male	Female	Total	Male		Female	Total
IV. DISEASES OF THE RESPIRATORY SYSTEM.																			
86. Diseases of the Nasal Fossae		1			2								1	0	1	0	0	0	1
87. Diseases of the Larynx		1											0	1	1	0	1	1	3
88. Diseases of the Thyroid Body						1	1	1	1	3		1	0	3	4	4	2	6	9
89. Acute Bronchitis	2				2		1	2	1				6	1	7	4	3	6	13
90. Chronic Bronchitis	1				3	6	14	5	4	8	11	10	23	18	41	53	88	91	182
91. Bronchopneumonia	13	24	8	8	3	6	9	6	3	7	11	16	43	37	80	56	56	108	188
92. Pneumonia	34	54	17	12	12	7	1		1				6	1	7	4	2	6	13
93. Pleurisy	4		3	1															
94. Pulmonary Congestion, Pulmonary Apoplexy	2	1	1			1	1	2	1	2	2	1	1	6	7	4	3	7	14
95. Asthma	1					2							1	0	1	1	2	3	4
96. Other Respiratory Diseases—(Tuberculosis excepted)					1						3	2	1	1	2	2	2	4	6
V. DISEASES OF THE DIGESTIVE SYSTEM.																			
99. Diseases of the Mouth and Adnexa													1	0	1	2	0	2	3
100. Diseases of the Pharynx	1	1	1	1		1	2	1	1		1	1	6	3	9	0	1	1	10
102. Ulcer of the Stomach	1	1			1	1		1	1	3			1	2	3	6	1	7	10
103. Other Diseases of the Stomach—(Cancer excepted)				2		1	1	2	2	3	1		2	5	7	2	8	10	17
104. Diarrhea Enteritis—(under 2 years)	2		1	1		11	14	18	13	7	1		16	18	34	22	12	34	68
105. Diarrhea and Enteritis—(2 years and over)																			
108. Appendicitis and Typhlitis	2		1	2		2	3	4	1	2		2	7	1	8	5	6	11	19
109. Hernias, Intestinal Obstructions	5	1	6	3	4	6	2	3	3	2		5	14	12	26	7	7	14	40
110. Other Diseases of the Intestine	1	1	3	2		5	5	2	2	2	2	5	10	6	16	6	8	14	30
111. Acute Yellow Atrophy of the Liver					2					1			0	3	3	0	1	1	4
113. Cirrhosis of the Liver			1		1			1		1			0	3	3	0	1	1	4
114. Biliary Calculi	1		1	2	2		4	2	1	2	1	4	3	3	6	3	11	14	20
115. Other Diseases of the Liver	4			1	2	1	2	1			1		0	3	3	0	0	0	3
													1	9	10	3	0	3	13

17. Simple Peritonitis—(non- puerperal).....	1	2	1	1	1	1	1	1	2	3	1	2	3	6
118. Other Digestive Diseases— (except Cancer, Tuberculosis)	1	1	1	1	1	1	1	1	2	3	0	0	0	3
VI. DISEASES OF THE GENI- TO-URINARY SYSTEM.														
119. Acute Nephritis.....	1	1	3	1	3	2	2	1	2	8	6	5	11	19
120. Bright's Disease.....	22	28	20	20	15	9	15	22	87	163	36	29	64	227
121. Chyluria.....	1	1	1	1	1	1	1	1	0	1	0	0	0	1
122. Other Diseases of the Kidney and Adnexa.....	1	1	1	3	1	2	1	1	1	3	6	2	1	12
123. Calculi of the Urinary Pas- sages.....	1	1	1	1	1	1	1	1	1	0	0	0	0	3
124. Diseases of the Bladder.....	1	1	1	1	1	1	1	1	0	3	0	0	0	3
125. Diseases of the Prostate.....	1	2	1	1	1	2	1	1	0	0	2	1	3	3
129. Uterine Tumor (non-cancer- ous).....	1	1	1	1	1	1	1	1	3	6	0	4	0	10
130. Diseases of the Uterus.....	1	1	1	1	1	1	1	1	0	1	0	0	0	1
131. Cysts and other Tumors of the Ovary.....	1	1	1	1	1	1	1	1	0	0	0	3	3	3
132. (Other non-venereal) Diseases of Female Genital Organs.....	1	1	1	1	1	1	1	1	0	1	0	1	1	2
VII. THE PUERPERAL STATE														
134. Accidents of Pregnancy.....	2	1	1	1	2	1	1	1	0	4	0	1	1	5
135. Puerperal Hemorrhage.....	1	1	1	1	1	1	1	1	0	2	0	3	3	5
136. Other Accidents of Labor.....	3	1	4	3	1	1	1	1	0	2	0	1	1	3
137. Puerperal Septicemia.....	3	1	1	1	1	1	1	1	0	8	0	10	10	18
138. Puerperal Albuminuria and Convulsions.....	3	1	3	2	1	1	2	3	0	8	0	12	12	20
140. Following Childbirth (not otherwise defined).....	1	1	1	1	1	1	1	1	0	1	0	0	0	1
VIII. DISEASES OF THE SKIN.														
142. Gangrene.....	1	2	1	2	1	2	1	1	1	4	5	3	6	11
143. Furuncle.....	1	1	1	1	1	1	1	1	0	1	0	0	0	1
144. Acute Abscess.....	1	1	1	1	1	1	1	1	0	0	1	0	1	1
IX. DISEASES OF THE OR- GANS OF LOCOMOTION.														
146. Diseases of the Bones—(Tu- berculosis excepted).....	1	1	2	1	1	1	3	1	2	4	1	8	4	8
147. Joint Diseases—(except Tu- berculosis and Rheumatism)	1	1	1	1	1	1	1	1	0	1	1	0	1	2

TABLE No. 16—Continued.

CAUSES OF DEATH	MONTHS												WHITE		COLORED		Grand Total		
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	White	Colored	White	Colored		Total	
													Total	Total	Total	Total			
X. MALFORMATIONS																			
150. Congenital Malformations— (stillbirths not included).....	4	2	1	3	3	5	.....	4	4	3	3	.....	17	13	30	1	1	2	32
XI. DISEASES OF EARLY INFANCY.																			
151. Congenital Debility, Icterus and Sclerema.....	15	10	18	10	14	12	14	18	20	14	10	8	60	30	90	39	34	73	163
152. Other Diseases Peculiar to Early Infancy.....	2	1	1	2	2	.....	2	6	2	1	1	3	10	7	17	4	2	6	23
153. Lack of Care.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	0	1	0	0	0	1
XII. OLD AGE.																			
154. Senility.....	2	6	.....	3	5	.....	2	1	1	3	3	3	7	15	22	3	4	7	29
XIII. EXTERNAL CAUSES.																			
155. Suicide by Poison.....	.....	.....	.....	1	.....	1	.....	.....	.....	.....	.....	.....	2	0	2	0	0	0	2
156. Suicide by Asphyxia.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	1	3	0	0	0	3
159. Suicide by Firearms.....	1	1	1	1	.....	.....	.....	1	1	.....	1	.....	7	0	7	0	0	0	7
161. Suicide by Jumping from a High Place.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	0	1	1	0	0	0	1
164. Poisoning by Food.....	.....	.....	.....	1	.....	.....	.....	1	.....	.....	.....	.....	1	0	1	0	1	1	2
165. Other Acute Poisonings.....	.....	.....	.....	.....	.....	2	1	1	.....	.....	1	.....	3	0	3	1	2	3	6
165a. Acute Wood Alcohol Poi- soning.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0	0	0	0	0	0	0
167. Burns.....	2	3	1	3	1	2	3	.....	2	2	3	.....	7	5	12	4	5	9	21
168. Absorption of Deleterious Gases.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0	0	0	0	0	0	0
169. Accidental Drowning.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3	1	4	5	0	5	9
170. Traumatism by Firearms.....	.....	.....	.....	.....	.....	2	2	2	1	.....	2	1	3	0	3	4	0	4	7
171. Traumatism by Cutting or Piercing Instruments.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	0	2	7	0	7	9
172. Traumatism by Fall.....	.....	1	2	4	1	6	1	1	2	1	4	.....	0	0	0	2	0	2	2
173. Traumatism in Mines and Quarries.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	10	11	21	5	2	7	26
	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	0	1	0	0	0	1

TABLE No. 17.

Deaths for the Year Ending December 31, 1920, Among Nonresidents.

CAUSES OF DEATH	MONTH												WHITE			COLORED			Grand Total	
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Male	Female	Total	Male	Female	Total		
I. GENERAL DISEASES.																				
1. Typhoid Fever.....							2			1	1		1	1	2	2	1	0	1	4
9. Diphtheria and Group.....		3											2	0	2	0	0	0	0	2
10. Influenza.....	2	3	1										1	4	5	1	0	1	0	6
20. Purulent Infection and Septicemia.....				1	1	1							2	1	3	0	0	0	0	3
26. Pellagra.....							1				1		2	1	3	0	0	0	0	3
28. Tuberculosis of the Lungs.....	1	1	1				1						2	1	3	3	1	4	1	7
30. Tubercular Meningitis.....							1						0	0	0	1	0	1	1	1
31. Abdominal Tuberculosis.....												1	0	1	1	0	0	0	0	1
32. Pott's Disease.....													0	1	1	0	0	0	0	1
33. Syphilis.....				1									0	0	0	1	0	1	1	1
37. White Swellings.....						2	1		1				0	2	2	2	1	3	1	5
39. Cancer of the Buccal Cavity.....				1									0	0	0	1	0	1	1	1
40. Cancer of the Stomach and Liver.....			2	2	1		1						2	3	5	1	0	1	0	6
41. Cancer of the Peritoneum, Intestines, Rectum.....				1							1		1	1	2	0	0	0	0	2
42. Cancer of the Female Genital Organs.....			1	1		1							0	2	2	0	1	1	3	3
45. Cancer of Other or Unspecified Organs.....				2	2	1			1				5	3	8	2	0	2	0	10
50. Diabetes.....	1	1	2	1		1				1			2	2	4	0	0	0	0	4
51. Exophthalmic Goitre.....				1	1								0	1	1	0	0	0	0	1
53. Leukæmia.....				1									1	0	1	0	0	0	0	1
54. Anæmia, Chlorosis.....	1			1		1		1					2	2	4	0	0	0	0	4
II. DISEASES OF THE NERVOUS SYSTEM.																				
60. Encephalitis.....																				
61. Simple Meningitis.....					1	1							1	1	2	1	0	1	0	3
63. Other Diseases of the Spinal Cord.....	1								4				3	2	5	0	0	0	0	5
64. Cerebral Hemorrhage, Apoplexy.....										1			1	0	1	0	0	0	0	1
	1		1	1							2	1	7	1	8	0	0	0	0	8

TABLE No. 17—Continued.

CAUSES OF DEATH	MONTH												WHITE			COLORED			Grand Total
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Male	Female	Total	Male	Female	Total	
VI. DISEASES OF THE GENITO-URINARY SYSTEM.																			
119. Acute Nephritis.....		1							1	1	1	1	1	3	4	0	1	1	5
120. Bright's Disease.....	2	2			3	2			1	1	4	1	13	2	15	2	1	3	18
121. Chyluria.....		1											1	0	1	0	0	0	1
122. Other Diseases of the Kidneys													1	2	3	1	0	1	4
123. Adnexa.....		1				1		1					0	2	2	0	0	0	2
123. Calculi of the Urinary Passages.....	1		1					2		1		1	4	0	4	1	0	1	5
126. Diseases of the Prostate.....			1										0	2	2	0	0	0	2
129. Uterine Tumor—(noncancerous).....					1								0	1	1	0	0	0	1
130. Diseases of the Uterus.....											1		0	0	0	0	1	1	1
131. Cysts and Other Tumors of the Ovary.....						1							0	0	0	0	1	1	1
VII. THE PUERPERAL STATE																			
134. Accidents of Pregnancy.....											1		0	2	2	0	0	0	2
137. Puerperal Septicemia.....		1			1		1					1	0	2	2	0	1	1	3
138. Puerperal Albuminuria and Convulsions.....	1							1		1		1	0	2	2	0	2	2	4
IX. DISEASES OF THE ORGANS OF LOCOMOTION.																			
146. Diseases of the Bones—(Tuberculosis excepted).....	1			1					1				0	0	0	1	2	3	3
X. MALFORMATIONS.																			
150. Congenital Malformations—(Stillbirths not included).....		1							1	1			2	1	3	0	0	0	3

XI. DISEASES OF EARLY INFANCY.

151. Congenital Debility, Icterus and Sclerema.....

XII. OLD AGE.

154. Senility.

XIII. EXTERNAL CUSES.

154. Suicide by Asphyxia.
155. Suicide by Firearms.
156. Suicide by Hanging.
157. Suicide by Jumping from a
161. High Place.
165. Other Acute Poisonings.
167. Burns.
168. Absorption of Deleterious
Gases.
169. Accidental Drowning.
170. Traumatism by Firearms.
171. Traumatism by Cutting or
Piercing Instruments.
172. Traumatism by Fall.
173. Traumatism in Mines and
Quarries.
174. Traumatism by Machine-
175. Traumatism by Other Crush-
ing Agents.
176. Injuries by Animals.
177. Homicide by Firearms.
178. Legal Electrocution.
185a.

TABLE No. 18.

Deaths of Infants Under One Year Occurring in Richmond, Virginia, During the Year 1920, Classified by Age at Death
Month, Color, Sex and Cause of Death.

1920	Under 1 Day	2nd Day	3rd Day	4th Day	5th Day	6th Day	7th Day	8th Day	9th Day	10th Day	11th Day	12th Day	13th Day	14th Day	3-4 Wks.	1-3 Mos.	3-6 Mos.	6-12 Mos.	1 Yr.
January.....	5	1	2	1	1	1	1	1	1	1	.....	.....	.....	.....	3	10	1	6	33
February.....	3	3	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3	12	1	15	45
March.....	7	4	.....	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3	6	5	10	42
April.....	19	3	1	.....	1	1	1	3	.....	.....	.....	.....	.....	.....	.....	5	6	8	35
May.....	12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	28
June.....	4	3	1	2	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	40
July.....	11	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	16
August.....	10	3	.....	.....	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	40
September.....	10	3	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	56
October.....	3	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	17
November.....	5	3	1	.....	2	1	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	56
December.....	2	.....	3	1	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	47
White.....	55	17	7	7	6	.....	6	2	2	1	.....	.....	.....	.....	.....	.....	.....	.....	31
Colored.....	21	7	7	4	3	3	2	6	3	4	1	.....	.....	.....	.....	.....	.....	.....	27
Male.....	48	16	9	9	7	2	3	3	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	224
Female.....	28	8	5	2	2	1	6	5	2	2	1	.....	.....	.....	.....	.....	.....	.....	254
6. Measles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
8. Whooping Cough.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
9. Diphtheria.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
10. Influenza.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
14. Dysentery.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
20. Purulent Infection and Septicemia.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
28. Tuberculosis of the Lungs.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
30. Tubercular Meningitis.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
34. Tuberculosis of Other Or- gans.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
36. Rickets.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
37. Syphilis.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
50. Diabetes.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
55. Other General Diseases.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
60. Encephalitis.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
61. Simple Meningitis.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
64. Apoplexy.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
66. Paralysis Without Specified Cause.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

TABLE No. 19.

Giving Death Rate and Per Cent. of Deaths from Different Causes.

CAUSES OF DEATH	ACTUAL NUMBER OF DEATHS.			DEATH RATE PER 1,000 LIVING.			PER CENT. OF TOTAL MORTALITY.		
	White	Colored	Total	White	Colored	Total	White	Colored	Total
I. General Diseases.....	394	335	729	3.32	6.19	4.21	24.83	26.56	25.60
II. Diseases of the Nervous System, and Organs of Special Sense.....	173	147	320	1.46	2.72	1.85	10.91	11.64	11.24
III. Diseases of the Circula- tory System.....	244	122	366	2.05	2.26	2.12	15.38	9.67	12.85
IV. Diseases of the Respira- tory System.....	152	233	385	1.28	4.31	2.22	9.58	18.46	13.52
V. Diseases of the Digestive System.....	135	115	250	1.14	2.12	1.45	8.51	9.12	8.78
VI. Diseases of the Genito- Urinary System, and its Annexa.....	192	90	282	1.61	1.66	1.63	12.11	7.12	9.90
VII. The Puerperal State....	25	27	52	.21	.50	.30	1.58	2.14	1.82
VIII. Diseases of Skin and Cellular Tissue.....	6	7	13	.06	.13	.07	.38	.55	.46
IX. Diseases of the Organs of Locomotion.....	5	5	10	.04	.09	.06	.32	.40	.35
X. Malformations.....	30	2	32	.25	.03	.18	1.89	.16	1.12
XI. Early Infancy.....	108	79	187	.91	1.46	1.08	6.81	6.26	6.57
XII. Old Age.....	22	7	29	.18	.13	.17	1.39	.55	1.02
XIII. External Causes.....	91	63	154	.76	1.16	.89	5.74	4.99	5.41
XIV. Ill-defined Diseases....	9	30	39	.07	.55	.23	.57	2.88	1.36
Total deaths from all causes...	1,586	1,262	2,848	13.34	23.31	16.46	100.00	100.00	100.00

TABLE No. 20.

Giving Death-Rate and Per Cent. of Deaths at Different Age Periods.

AGE PERIODS.	ACTUAL NUMBER OF DEATHS			DEATH RATE PER 1,000 LIVING AT ALL AGES			PER CENT. OF TOTAL MORTALITY.		
	White	Colored	Total	White	Colored	Total	White	Colored	Total
Less than 1 day.....	55	21	76	.46	.39	.44	3.47	1.66	2.67
Between 1 day and 1 week.....	43	28	69	.36	.48	.40	2.71	2.06	2.42
First week.....	98	47	145	.82	.37	.84	6.18	3.72	5.09
2nd, 3rd and 4th weeks.....	15	31	46	.18	.57	.28	.95	2.46	1.61
First month.....	113	78	191	.95	1.44	1.71	7.13	6.18	6.70
1 to 3 months.....	30	42	72	.25	.77	.42	1.89	3.33	2.53
3 to 6 months.....	29	56	85	.24	1.04	.49	1.83	4.44	2.99
6 to 12 months.....	52	78	130	.44	1.44	.75	3.28	6.18	4.56
First year.....	224	254	478	1.88	4.69	2.76	14.13	20.13	16.78
Second year.....	51	47	98	.43	.37	.57	3.21	3.72	3.44
Third year.....	12	18	30	.10	.33	.17	.76	1.43	1.05
Fourth year.....	8	11	19	.07	.20	.11	.50	.87	.67
Fifth year.....	13	7	20	.11	.13	.12	.82	.55	.70
Total under 5 years.....	308	337	645	2.59	6.22	3.73	19.42	26.70	22.64
5 to 10 years.....	31	24	55	.26	.44	.32	1.95	1.91	1.93
10 to 15 years.....	23	14	37	.19	.26	.21	1.45	1.11	1.30
15 to 20 years.....	26	47	73	.22	.87	.42	1.64	3.72	2.56
20 to 25 years.....	58	78	136	.49	1.44	.79	3.65	6.18	4.77
25 to 30 years.....	63	71	134	.53	1.31	.78	3.97	5.62	4.71
30 to 35 years.....	54	60	114	.45	1.11	.66	3.41	4.75	4.01
35 to 40 years.....	82	93	175	.69	1.72	1.01	5.17	7.37	6.15
40 to 45 years.....	71	105	176	.60	1.94	1.02	4.47	8.32	6.18
45 to 50 years.....	82	74	156	.69	1.37	.90	5.17	5.86	5.48
50 to 55 years.....	92	99	191	.77	1.82	1.10	6.80	7.84	6.71
55 to 60 years.....	75	78	153	.63	1.44	.86	4.73	6.18	5.36
60 to 65 years.....	121	90	211	1.02	1.66	1.22	7.63	7.13	7.41
65 to 70 years.....	123	45	168	1.03	.83	.97	7.76	3.57	5.90
70 to 75 years.....	111	29	140	.93	.54	.81	7.00	2.30	4.92
75 to 80 years.....	118	7	125	1.00	.13	.72	7.44	.55	4.39
80 to 85 years.....	90	5	95	.76	.09	.55	5.68	.40	3.34
85 to 90 years.....	42	3	45	.35	.06	.26	2.65	.24	1.58
90 to 95 years.....	13	3	16	.11	.06	.09	.82	.24	.56
95 to 100 years.....	3	0	3	.03	.....	.02	.19	.....	.10
Over 100 years.....	0	0	0	.....	.....	.....	.....	.....	.....
Total.....	1,586	1,262	2,848	13.34	23.31	16.46	100.00	100.00	100.00

TABLE No. 21.

Showing the Number of Persons Who Died Elsewhere and Were Buried Here and Their Color.

	WHITE	COLORED	TOTAL
Nonresidents.....	322	118	440

Showing the Number of Persons Who Died Here and Were Buried Elsewhere and Their Color.

	WHITE	COLORED	TOTAL
Transit Permits Granted.....	409	258	667

TABLE No. 22.

Showing the Number of Typhoid Fever Cases Reported to the Health Bureau, and the Number of Deaths for Each Month in 1920.

MONTH	Cases on hand at beginning of month	CASES REPORTED IN MONTH			Total under treatment	DEATHS IN MONTH			Recoveries in month	Total discharges	Cases on hand at end of month
		White	Colored	Total		White	Colored	Total			
January....	8	3	0	3	11	1	0	1	3	4	7
February....	7	3	1	4	11	3	0	3	5	3	3
March.....	3	2	0	2	5	0	0	0	2	2	3
April.....	3	3	1	4	7	0	0	0	3	3	4
May.....	4	0	0	0	4	0	0	0	4	1	0
June.....	0	3	0	3	3	0	0	0	1	1	2
July.....	2	11	4	15	17	1	3	4	2	6	11
August.....	11	11	5	16	27	0	0	0	12	12	15
September..	15	11	2	13	28	1	0	1	12	13	15
October.....	15	7	2	9	24	1	0	1	6	7	17
November..	17	6	1	7	24	0	1	1	12	13	11
December..	11	3	0	3	14	0	0	0	12	12	2†
Total....	8*	63	16	79	87	7	4	11	74	85	

* Cases on hand at the beginning of 1920.

† Cases on hand at the close of 1920.

TABLE No. 23.

Showing Number of Cases of Diphtheria, Scarlet Fever and Measles Reported to the Bureau of Health and the Deaths from these Diseases During Each Month of 1920.

MONTH	DIPHTHERIA						SCARLET FEVER						MEASLES					
	Cases			Deaths			Cases			Deaths			Cases			Deaths		
	White	Colored	Total	White	Colored	Total	White	Colored	Total	White	Colored	Total	White	Colored	Total	White	Colored	Total
January.....	21	2	23	2	1	3	27	9	30	0	0	0	314	18	332	0	0	0
February.....	12	0	12	3	0	3	19	2	21	0	0	0	301	22	323	2	0	2
March.....	15	1	16	0	0	0	16	0	16	0	0	0	340	57	397	2	0	2
April.....	8	2	10	0	1	1	15	2	17	0	0	0	412	70	482	2	0	2
May.....	6	1	7	2	0	2	14	2	16	0	0	0	470	93	563	0	2	2
June.....	3	2	5	0	0	0	9	0	9	0	0	0	393	30	423	1	0	1
July.....	4	1	5	0	0	0	5	0	5	0	0	0	66	5	71	0	1	1
August.....	25	4	29	0	0	0	9	0	9	0	0	0	23	1	24	0	0	0
September.....	96	15	111	1	0	1	25	0	25	0	0	0	23	0	23	0	0	0
October.....	171	20	191	4	1	5	34	0	34	0	0	0	1	0	1	0	0	0
November.....	101	10	111	2	0	2	20	5	25	0	0	0	1	0	1	0	0	0
December.....	61	3	64	2	1	3	20	2	22	0	0	0	6	2	8	0	0	0
Total.....	523	61	584	16	4	20	213	16	229	0	0	0	2309	298	2607	7	3	10

TABLE No. 24.

Showing Number of Cases of Whooping Cough, Chickenpox and Smallpox Reported to the Bureau of Health, and the Number of Deaths for Each Month of 1920.

MONTHS	WHOOPIING COUGH						CHICKENPOX						SMALLPOX					
	Cases			Deaths			Cases			Deaths			Cases			Deaths		
	White	Colored	Total	White	Colored	Total	White	Colored	Total	White	Colored	Total	White	Colored	Total	White	Colored	Total
January.....	2	0	2	0	0	0	69	7	76	0	0	0	0	0	0	0	0	0
February.....	4	0	4	1	0	1	32	4	36	0	0	0	0	0	0	0	0	0
March.....	15	3	18	0	0	0	16	1	17	0	0	0	1	1	2	0	0	0
April.....	29	8	37	1	0	1	19	2	21	0	0	0	1	0	1	0	0	0
May.....	28	12	40	0	0	0	23	5	28	0	0	0	0	0	0	0	0	0
June.....	54	7	61	1	1	2	53	6	59	0	0	0	0	0	0	0	0	0
July.....	44	12	56	3	3	6	7	4	11	0	0	0	0	0	0	0	0	0
August.....	9	12	21	1	6	7	4	1	5	0	0	0	0	0	0	0	0	0
September.....	19	16	35	5	4	9	3	3	6	0	0	0	0	0	0	0	0	0
October.....	13	1	14	0	4	4	4	0	4	0	0	0	0	0	0	0	0	0
November.....	17	3	20	1	2	3	12	2	14	0	0	0	0	0	0	0	0	0
December.....	11	3	14	0	4	4	13	2	15	0	0	0	0	0	0	0	0	0
Total.....	225	77	302	8	32	40	255	32	287	0	0	0	12	1	13	0	0	0

TABLE No. 25.
*Meteorological Observations, 1920.**

MONTH	Highest Degree	Lowest Degree	Mean Degree	Rainfall in inches
January	68	10	34	2.02
February	58	14	36	6.67
March	79	18	48	3.11
April	86	31	55	2.96
May	82	39	61	3.06
June	95	53	72	6.34
July	94	56	75	6.05
August	92	57	75	8.69
September	89	51	71	2.71
October	86	34	61	.66
November	75	21	47	6.69
December	67	21	41	1.87
Total				50.83

* From reports of United States Weather Bureau.

REPORT OF MEDICAL INSPECTOR.

Dr. C. C. Hudson,
Health Officer,
Richmond, Va.

Sir:

I have the honor to submit my report, as Medical Inspector of the City of Richmond, for the year ending December 31, 1920.

There were 79 cases of typhoid reported in 1920, with 11 deaths, while in 1919 there were 85 cases and 6 deaths. The diphtheria cases reported in 1920 numbered 584, with 20 deaths, while 269 cases were reported in 1919, with 15 deaths. Scarlet fever showed a total of 229 cases, with no deaths, while in 1919 there were 254 cases and 3 deaths.

Measles was very prevalent in the early part of 1920, 2,607 cases and 10 deaths being reported from this cause. In 1919 there were 404 cases with 4 deaths.

Whooping cough was very prevalent during the year, 40 deaths having been reported from this cause. Chicken-pox and mumps cases were practically the same as in previous years.

While this report gives some idea of the scope and magnitude of the office of Medical Inspector, it does not cover the entire amount of work done. There are certain phases of the duties of the office which are of such a nature that they cannot be recorded and yet are of great importance and very time-consuming. The clerical work necessary to keep the office records up to date, so that unusual occurrence in any one disease can be readily ascertained, is important and at the same time consumes much time.

Table No. 1, which follows, shows the recorded visits made by myself, by months, for each disease. It also shows the number of vaccinations and anti-typhoid treatments.

TABLE No. 1.
Table Showing Work of Medical Inspector in 1920.

MONTH	Typhoid Fever	Diphtheria	Scarlet Fever	Measles	Chickenpox	Smallpox	Smallpox Vaccinations	Typhoid Vaccinations	Poliomyelitis	Other Causes *	Total
January.....	4	53	39	98	3	0	5	0	0	21	218
February.....	5	82	71	4	1	0	1	0	0	41	204
March.....	5	56	49	8	6	18	21	0	0	46	182
April.....	9	74	49	12	6	12	17	30	0	32	195
May.....	9	44	49	9	7	14	34	59	0	52	184
June.....	13	30	34	9	10	1	1	17	0	46	143
July.....	42	35	14	0	4	0	0	43	0	32	127
August.....	33	84	21	0	1	0	12	56	0	30	169
September.....	23	288	37	2	0	0	21	7	0	21	371
October.....	7	502	71	0	0	0	8	5	1	47	628
November.....	8	415	81	0	1	0	9	1	0	73	678
December.....	4	240	81	6	0	13	8	0	0	97	441
Total.....	162	1,897	596	148	39	58	137	218	1	589	3,795†

* One visit to Hopewell on account of typhoid outbreak.

† Visits by Dr. Hudson and Nurse not included.

Table No. 2 shows approximately the specimens taken by the Medical Inspector for the purpose of aiding the physicians in the diagnosis of typhoid fever, malaria and diphtheria; also the number of nose and throat swabs taken for release of diphtheria cases. We are glad to note that the Laboratory has abandoned the old dried drop of blood method of making the microscopic Widal reaction and has substituted the macroscopic. This reaction is much more reliable, but is rather a late test compared to the blood culture.

Of the 79 cases of typhoid fever reported, the Medical Inspector obtained blood from 13. Of the 46 blood cultures taken by the Medical Inspector, 7 were positive; and of the 52 specimens of blood taken for the Widal reaction, 9 were positive. A large proportion of the diagnostic diphtheria swabs were taken from sore noses and skin lesions of a suspicious nature.

TABLE No. 2.

Showing Specimens Taken by Medical Inspector.

1920	BLOOD FOR			SWABS TAKEN FOR DIPHTHERIA CULTURES			
	Malaria	Widal Reaction	Blood Cultures	Nose and Throat		Skin and Ear	Total
				Magnosis	Release		
January.....	0	1	1	7	79	0	88
February.....	0	0	1	6	114	0	121
March.....	0	0	1	26	47	0	74
April.....	0	0	0	10	103	0	113
May.....	0	4	4	9	61	0	78
June.....	0	6	6	4	14	0	80
July.....	3	16	8	6	40	2	75
August.....	4	14	14	10	45	3	90
September.....	4	6	6	21	307	3	349
October.....	0	0	0	84	1,146	2	1,232
November.....	0	2	2	18	989	0	1,011
December.....	0	3	3	21	528	0	555
Total.....	11	52	46	222	3,473	12	3,816 *

*Specimens taken by Dr. Hudson and Nurse not included.

TYPHOID FEVER.

Only 79 cases of typhoid fever were reported to the Health Bureau during 1920. Of these 79 cases, 34 showed a positive blood culture, while 26 gave a positive Widal. Ten showed positive for both tests and 2 were negative for both Widal and blood culture. There were 23 cases diagnosed without the aid of the Laboratory. There were 11 deaths from this disease, but the cases occurring at the first of the year were complicated by pneumonia, which was prevalent at that time on account of influenza. Then, again, six of the deaths were of imported cases.

TABLE No. 3.

Showing Cases of Typhoid Fever Contracted In and Out of Richmond in 1920.

	Number	Percent. of all Cases
Cases certainly contracted out of city.....	16	
Cases in which information was not conclusive:		
8 probably contracted out of city, (Probability 75%).....	6	
5 with equal probability (probably 50%).....	2	
7 possibly contracted out of city,.....	2	
Total cases contracted out of city, (known and estimated).....	26	33
Cases contracted in city, (known and estimated).....	53	67
TOTAL.....	79	

Table No. 3 shows that 26 of the 79 typhoid patients contracted the disease out of Richmond. Six of these died, giving a case fatality of 23 per cent. If we only had to account for cases which found their origin in Richmond there would have been 53 cases, with 5 deaths, or a case fatality of 9.4 per cent. Taking into account all cases within the city limits, the case fatality was 13.9 per cent. Approximately one-third of the reported cases were imported and more than half the deaths were among these imported cases. If we only include those deaths which occurred among typhoid cases contracted in Richmond, the death rate was 2.9 per 100,000 population. The 6 deaths of cases contracted out of Richmond would give a rate of 3.5 per 100,000 population.

TABLE No. 4.

Deaths and Death Rates From Typhoid Fever in 1920.

	No. of Deaths	Death Rate per 100,000
Total Deaths.....	11	6.4
White.....	7	5.9
Colored.....	4	7.4
Contracted in Richmond.....	5	2.9
White.....	3	2.5
Colored.....	2	3.7
Contracted out of Richmond.....	6	3.5
White.....	4	3.4
Colored.....	2	3.7

The above table shows the number of deaths according to origin and race, also the death rates per 100,000 population.

It is interesting to note the extremely high case fatality among the colored race. The case fatality of the colored cases reported in 1920 was 25 per cent., while in 1919, 8.3 per cent. died.

Table No. 5, which follows, reveals some very interesting case fatality per cents.

TABLE No. 5.
Table Showing the Case Fatality of Typhoid Fever in 1920.

CASES	No. of Cases	No. Cases Terminated	Deaths	Case Fatality Per Cent.
On hand January 1, 1920, Reported in 1920	8 79	8 77	0 11	0.0 14.3
Total under treatment in 1920	87	85	11	12.9
Cases Contracted in 1920				
White	63	61	7	11.5
Colored	16	16	4	25.0
Contracted in Richmond (estimated)	53	53	5	9.4
Contracted out of Richmond (estimated)	26	24	6	25.0
Corrected figures for 1919 from final outcome of all cases re- ported during the year.	85	85	6	7.1

Table No. 6 shows that typhoid in 1920, with a death rate of 6.36 per 100,000 population, is safely under all previous years, with the exception of 1919. The year 1917, with a rate of 6.7, holds third place.

TABLE No. 6.
Showing the Number of Cases, Deaths and Death Rates from Typhoid Fever,
for Each Year from 1907 to 1920, Inclusive.

YEAR	CASES REPORTED			DEATHS			DEATH RATE PER 100,000		
	White	Colored	Total	White	Colored	Total	White	Colored	Total
1907.....	395	100	495	37	10	47	52.5	23.3	41.4
1908.....	388	106	494	39	18	57	54.6	41.5	49.7
1909.....	293	83	376	18	10	28	24.9	22.8	24.1
1910.....	197	66	263	15	13	28	18.4	27.8	21.8
1911.....	188	63	251	16	7	23	19.0	14.9	17.6
1912.....	147	61	208	16	6	22	18.5	12.8	16.5
1913.....	178	55	233	18	9	27	20.2	19.1	19.8
1914.....	98	60	148	8	11	19	8.7	23.4	13.7
1915.....	106	49	155	6	13	19	5.8	24.2	11.9
1916.....	160	64	224	17	20	37	15.7	37.2	22.8
1917.....	69	29	98	5	6	11	4.5	11.1	6.7
1918.....	69	86	105	6	6	12	5.3	11.1	7.2
1919.....	73	12	85	5	1	6	4.3	1.8	5.5
1920.....	63	16	79	7	4	11	5.9	7.4	6.4

TYPHOID DEATHS.

Case No. 1, white, female, aged 24. Her illness followed a miscarriage. She was taken ill on January 3rd and died on January 12th, an illness of nine days. The diagnosis was made on the Widal reaction

with a dried drop of blood. A very doubtful case, classed as contracted in Richmond.

Case No. 2 was a white male, aged 37—positive blood culture—complicated by pneumonia during the "flu" epidemic.

Case No. 3, white, female, 21 years, was diagnosed on a positive Widal reaction. This was a clinical case and ran 32 days before death.

Case No. 5, white, male, 36 years, gave a positive blood culture. Was taken on February 2nd and died on February 14th, complicated with pneumonia.

Case No. 16, white, female, 56 years, was brought to the hospital from outside the City while ill. She gave a positive Widal, blood culture negative, stool positive. This patient was ill 36 days.

There is nothing to be said concerning cases Nos. 26 and 28. They showed positive blood cultures.

Case No. 30 was clinically typhoid, but no blood was taken.

Case No. 58, white, female, 13 years, was ill fourteen days; blood negative; had middle ear infection.

Cases Nos. 59 and 69 had no blood taken. Both these cases were imported.

DIPHThERIA.

Diphtheria was rather unsatisfactory during 1920. There were 584 actual cases reported. This figure is exclusive of carriers and chronic nasal cases.

Table No. 7 shows the entire number of persons quarantined, except those cases under post-paralysis, scarlet fever and diphtheria, which are included under some other head.

TABLE No. 7.

Table Showing the Different Types, and the Various Combinations, of Diphtheria That Occurred During 1920.

	Tonsillar	Nasal	Laryngeal	Tonsillar Nasal	Tonsillar Nasal Laryngeal	Tonsillar Laryngeal	Nasal Laryngeal	Skin	Tonsillar Middle Ear	Laryngeal Middle Ear	Carriers	Skin Middle Ear Tonsillar Laryngeal	Post-Diphtheritic Paralysis	Diphtheria Complicating Scarlet Fever	Total
White.....	475	35	16	5	0	5	0	2	0	43	0	6	4	591	
Colored.....	49	13	1	0	1	0	0	0	0	0	0	0	0	64	
Total.....	524	48*	17†	5	1†	5†	0	2	0	43†	0	6†	4†	655	

* This figure includes 30 acute nasal cases and 18 chronic nasal cases.

† Total of 23 laryngeal cases.

‡ Not included in the total of 584 actual cases.

There were 20 deaths recorded during the year, giving a comparatively high death rate of 11.56, but the case fatality rate was relatively low, being 3.4 per 100 cases.

During the months of September to December, inclusive, there was quite a sharp diphtheria outbreak. This condition apparently prevailed in many cities over the country and throughout the State of Virginia. It became necessary to employ a nurse, Miss Lowry, for a period of 60 days while this outbreak was at its height. The Health Officer also assisted in the work for six weeks.

We can repeat here what was emphasized in our report last year. Physicians should give larger initial doses of antitoxin and try to neutralize all poison with the first dose. If the patient has just been taken ill, a dose of 7,500 units given intramuscularly may be sufficient, but if the disease has gone 24 hours, a dose of at least 10,000 units should always be given. Cases that have gone 48 hours or longer, where there is a thick, heavy exudate, where there is rapid glandular enlargement, or signs of toxemia, and in all laryngeal cases, the patient should be given 10,000 to 30,000 units of antitoxin intravenously as an initial dose.

During 1920 there were 23 cases of laryngeal diphtheria in the City. Of these, 19 were handled by Dr. P. D. Lipscomb, who intubated 11 and found intubation unnecessary in 8. We are glad to report 100 per cent. recoveries in these 19 cases. Of the four remaining cases, there was one death. This child, colored, female, 8 years, began with a mild case of tonsillar diphtheria. Antitoxin was not administered till eight days after the onset of the disease and when laryngeal symptoms were well advanced. The office had not been notified of the developments in this case. Dr. E. C. Levy, Director of Public Welfare, intubated one of the cases, as Dr. Lipscomb was not in Richmond. Dr. E. C. Bryce was called in as consultant in one case, but did not have to intubate. The one remaining case was found early and given large doses of antitoxin and no consultation was necessary.

Table No. 8 shows the number of actual cases reported, also the number of white and colored, with the number of deaths, case fatality and death rate.

TABLE No. 8.

Summary of Diphtheria Statistics.

Total number of cases reported.....	584
White	523
Colored	61
Total number of deaths	20
Case fatality	3.4
Death rate per 100,000	11.56

SCARLET FEVER.

Only 229 cases of scarlet fever were reported in 1920, and no deaths. Table No. 9, which follows, shows the number of secondary cases. Practically all occurred in the first seven days. All homes in which a case of scarlet fever has existed were visited by Mr. Waller and instructions given concerning the cleaning up of the premises after quarantine had been lifted.

TABLE No. 9.

Showing Number of Secondary Cases of Scarlet Fever. Also the Number of Days Elapsing After the Eruption of the Primary Case, or Cases.

Days Elapsing After Eruption of Primary Case	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	Total
No. of Second- ary Cases	1	2	3	1	0	0	2	0	1	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	14

Table No. 10 gives a summary of the scarlet fever statistics for 1920.

TABLE No. 10.

Summary of Scarlet Fever Statistics for 1920.

Total number of cases reported.....	229
White	213
Colored	16
Total number of deaths	0
Case fatality	0
Death rate per 100,000	0

MEASLES.

The following table, giving the number of cases, the number by races, number of deaths, case fatality per cent. and the death rate per 100,000 population, compares very favorably with other epidemic years. The smallest case fatality per cent. since before 1907. This can be seen by a glance at Table No. 12.

TABLE No. 11.

Summary of Measles Statistics for 1920.

Total number of cases reported.....	2,607
White	2,309
Colored	298
Number of deaths	10
Case fatality per cent.	0.38
Death rate per 100,000	5.78

Table No. 12 gives a comparison of the measles years as far back as 1907.

TABLE No. 12.
Measles Epidemics (1907-1916, inclusive).

YEAR	No. Cases Epidemic	No. Deaths Epidemic	Case Fatality Per Cent.	Mortality per 100,000	Month Prevalent
1907	1189	35	2.9	30.9	January to April
1910	2313	29	1.3	22.7	February to August
1912 } 1913 }	5446	25	.5	18.9	{ November, 1912 to June, 1913
1916	6729	38	.6	28.1	January to July

TABLE No. 13.
Measles Outbreaks (1917-1920, inclusive).

YEAR	No. Cases Epidemic	No. Deaths Epidemic	Case Fatality Per Cent.	Mortality per 100,000	Month Prevalent
1917	1520	6	.4	3.8	January to June
1918	1424	7	.5	4.4	January to July
1919	404	4	1.0	2.5	January to June
1920	2607	10	.4	5.8	January to July

During 1920 there were 2,607 cases of measles reported and only 10 deaths, which is a very low case fatality. The disease was most prevalent from the first of January to the last of June. It started abruptly and ended with the same abruptness.

POLIOMYELITIS.

We are glad to have practically no infantile paralysis to report. The table which follows needs no explanation, October and December being the months in which the three cases occurred.

INFANTILE PARALYSIS (Poliomyelitis).

Table Showing Case Incidence and Deaths by Months.

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Cases.....	0	0	0	0	0	0	0	0	0	2	0	1	3
Deaths.....	0	0	0	0	0	0	0	0	0	0	0	0	0

The following table shows that two white males were stricken and one white female. Both of the cases, which are regarded as having been contracted in Richmond, were in adults. One of these ran rather a

typhoid course and has no apparent after effects. The other was a man 36 years old and he, also, had no after effects. The little girl, white, aged 1, was brought to the city for after treatment.

Table Showing Where Contracted.

	WHITE		COLORED		Total	Deaths	Case Fatality Percent.
	Male	Female	Male	Female			
Contracted in Richmond.....	2	0	0	0	2	0	0
Contracted out of Richmond.....	0	1	0	0	1	0	0
Total.....	2	1	0	0	3	0	0

There were no deaths from this disease.

SMALLPOX.

It is indeed gratifying to be able to report only 3 cases of smallpox during 1920, all imported. This is particularly remarkable when it has been so prevalent throughout Virginia.

Our first case came to Richmond from West Virginia and was placed in quarantine at the Smallpox Hospital. The second was imported from Norfolk. The third was a child which came from Chester, S. C., and broke out three or four days after arriving in the city.

LEPER.

Georgus Hartzolakis, the leper, who came to Richmond in December, 1915, is still with us. His condition has slowly but surely become worse. During 1919 he was given a course of treatment with Chaulmugra Oil. He seemed to improve under this treatment for a time, but it finally became necessary to discontinue the oil. No further treatment was instituted until December 16, 1920, when we began the administration of Sodium Hydnocarpate "A." This drug is reported to have effected many cures in leprosy. We are having the powdered drug put up in capsules, two grains each, for use by mouth, and one grain to the c.c. of sterile solution for hypodermic use. The capsules are given three times a day after meals, while the hypodermic doses are given once a week. These doses are to be increased so long as it is tolerated by the patient. We hope to help this poor, unfortunate man by this new treatment.

Respectfully submitted,

P. M. CHICHESTER, M. D.,
Medical Inspector.

REPORT OF SMALLPOX HOSPITAL.

Dr. C. C. Hudson,
Health Officer,
Richmond, Va.

Sir:

I have prepared the following report of cases treated at the Smallpox Hospital for the year ending December 31, 1920:

	WHITE			COLORED			TOTAL		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Smallpox from Richmond	1	1	2	1	0	1	2	1	3

One exposure which was taken to the Hospital for quarantine developed a mild attack. One of the three cases had been vaccinated about twenty-five years previous to his attack. The other two had not been vaccinated.

Respectfully submitted,

P. M. CHICHESTER, M. D.,
Medical Inspector.

REPORT OF BACTERIOLOGIST

January 15, 1921.

Dr. C. C. Hudson,
Health Officer,
Richmond, Va.

Sir:

I have the honor to submit herewith my report as City Bacteriologist for the year ending December 31, 1920.

There were 15,536 specimens examined during the year, an increase of 6,746 over 1919, and the largest number examined in any one year since the organization of the laboratory. It is interesting to note that the amount of work done in 1920 exceeded that of 1919 and 1918 combined. The comparative figures are shown in the following table:

TABLE No. 1.

	1916	1917	1918	1919	1920
Blood Culture.....	316	123	62	110	182
Diphtheria	2146	2865	1429	2457	7522
Gonorrhea		2	808	987	796
Malaria	407	186	113	94	80
Tuberculosis.....	863	796	686	550	860
Wassermann Reaction.....			559	1885	2779
Widal Reaction.....	571	259	226	170	208
Miscellaneous.....	87	18	94	22	85
Total Diagnostic.....	4390	4249	3917	6275	12512
Sanitary Examinations.....					
Water	169	77	189	100	140
Milk	2176	2139	2207	2415	2884
Total Examination.....	6735	6465	6263	8790	15536

The combination of the City Laboratory with that of the State has been continued, the work being done as heretofore at the Medical College of Virginia. Some change, however, will soon have to be made, as the growth of the work has been so rapid that our present quarters have become very inadequate.

The staff of this combined laboratory has had several changes, the most regrettable being the loss of Dr. E. C. L. Miller, our director. His election as dean of the Medical College forced him to withdraw from our organization July 1st.

The staff, at present, is as follows:

Aubrey H. Straus, B. S. Director, Bacteriologist of the State Board of Health, Bacteriologist of the Richmond Health Bureau, Associate Professor of Bacteriology M. C. V.

Lloyd C. Bird, Ph. G., Assistant Bacteriologist to the State Board of Health and Richmond Health Bureau, Associate in Bacteriology M. C. V.

Adah Corpening, Serologist.

Hazel Ash, B. S. Assistant Bacteriologist.

Ruth Cunningham, B. S. Assistant Bacteriologist.

The great increase in diphtheria cultures in 1920 was due to the unusual prevalence of this disease, so that there will probably be a decrease in this work in 1921. The increase in the Wassermann work, however, will no doubt continue, as every month finds more physicians availing themselves of this test. While there has been an increase in the tuberculosis work over 1919, the number of specimens is still far short of what they should be and not quite equal to 1916.

On April 1st the microscopic Widal test was discontinued and the macroscopic test substituted for it. A new outfit was issued consisting of a sterile, corked tube. This outfit is used for blood for the Widal or Wassermann test or for spinal fluid. This change in the Widal technique has not resulted in a single complaint up to the present time, while many physicians have expressed satisfaction at the increased diagnostic value of the results. We consider this one of the most important changes ever made by this laboratory.

The blood culture outfit has continued to prove satisfactory, more different physicians having made use of this test than ever before. As seen in the note following Table 2, two blood cultures showed the presence of an unidentified bacillus.

The organism in each case resembled culturally *B. paratyphosus* B., but could not be agglutinated either by our sera or that of several other laboratories.

As shown in Table 2, a very small percentage (2.02 per cent.) of positive cultures were found among those exposed to diphtheria. This is rather interesting in view of the extravagant claims sometimes made as to the large percentage of normal persons who are diphtheria carriers. As no virulence tests were made in these cases, even this percentage is probably too large. A few of these cases developed some symptoms, but most of them were only carriers.

During March and April daily samples of the city water supply were examined for the purpose of isolating and identifying all lactose fermenting organisms. As these examinations were not made in the usual complete manner, the number of samples examined are not included in our tables. Two tubes of bouillon were inoculated daily, one with 10 cc. of water and one with 20 cc. Over a period of five or six weeks only four lactose fermenting organisms were isolated. The water purification at this period seemed to be unusually efficient. In June this work was resumed and daily examinations made for about two weeks. Eight additional lactose fermenting organisms were isolated during this period, making 12 cultures in all. These 12 cultures were classified as follows:

<i>B. Coli</i> (probably fecal)	5
<i>B. Acidi lactici</i> (probably fecal)	1
<i>B. Aerogenes</i>	4
Unidentified bacillus	2

The unidentified bacilli were spore-bearing, aerobic and negative with the Gram stain. In a young culture they might readily be confused with organisms of the B. Coli group.

As seen above, only 50 per cent. of these organisms are of real significance. These findings show the importance of confirming carefully all presumptive tests on our city water.

TABLE No. 2.

Table Showing Results of Diagnostic Examinations with per cent of Positive Specimens.

RESULT	Blood Cultures	DIPHTHERIA			Gonorrhoea	Malaria	Tuberculosis	Wassermann Reaction	Widal Reaction	Total
		Diagnosis	Release	Exposure						
Positive.....	33*	557	595	38	169	3	191	571	21	2 178
Negative.....	138	2,575	1,750	1,839	618	72	667	2,136	178	9,968
Total—										
Positive and negative.....	171	3,132	2,345	1,877	782	75	858	2,707	199	12 146
Per cent. of positives.....	19.3	17.8	25.4	2.02	21.6	4.0	22.3	21.1	10.5	19.5
Atypical.....	2	89	0	31	7	1	0	2	9	141
Unsatisfactory Specimens	9	21	12	15	7	4	2	70	0	140
Total.....	182	3,242	2,357	1,923	796	80	860	2,779	208	12,427
			7,522							

Miscellaneous Examinations..... 85

Total Diagnostic Examinations..... 12,512

*26 Typhoid, 2 Para-Typhoid B, 2 Streptococcus, 1 Pneumococcus and 2 Unidentified Bacilli.

TABLE No. 3.

MONTH	DIAGNOSTIC EXAMINATIONS											Sanitary Exm.		Total
	Blood Culture	DIPHTHERIA			Gonorrhoea	Malaria	Tuberculosis	Wassermann Reaction	Widal Reaction	Miscellaneous	Total	Water	Milk	
		Diagnosis	Release	Exposure										
January.....	9	97	69	30	55	2	60	173	3	8	503	4	204	711
February.....	11	80	94	39	65	5	52	118	10	20	494	7	195	696
March.....	10	102	36	44	112	6	62	196	6	7	590	8	253	841
April.....	5	76	89	29	64	5	92	207	4	7	577	9	278	867
May.....	8	124	46	28	66	4	69	202	10	6	562	10	248	820
June.....	9	41	20	26	52	4	56	184	14	2	387	32	266	684
July.....	30	35	33	16	53	19	100	317	42	7	652	66	284	1,002
August.....	32	71	50	20	47	17	78	245	47	5	612	3	224	839
September.....	28	401	264	186	108	8	83	280	27	4	1,538	2	237	1,577
October.....	24	1,091	742	714	88	7	63	300	23	6	3,063	2	259	3,314
November.....	10	746	624	534	57	3	82	262	13	6	2,317	3	240	2,560
December.....	9	379	230	328	54	1	64	235	9	8	1,437	1	197	1,635
Total.....	182	3,242	2,357	1,923	796	80	860	2,779	208	85	12,512	140	2,384	15,536
				7,522										

TABLE No. 4.
Bacteriological Examination of Milk as Received from Farms Before Being Pasteurized, Showing Number and Percentage of Samples in Each Class.

CLASS BACTERIA PER C. C.														
	January	February	March	April	May	June	July	August	September	October	November	December	Total	Percentage of Total of Each Class
Below 10,000	119	88	68	85	71	32	30	13	21	39	51	74	638	23.4
10,000 to 25,000	14	22	32	34	34	21	22	22	23	24	46	37	308	13.5
25,000 to 50,000	17	16	26	39	34	35	35	31	31	38	34	27	326	11.8
50,000 to 100,000	8	21	24	39	21	25	25	26	24	41	34	11	800	11.0
100,000 to 250,000	8	15	24	39	21	25	25	26	24	41	34	11	800	11.0
250,000 to 500,000	9	5	30	48	26	40	42	27	33	29	27	8	328	12.0
500,000 to 1,000,000	9	5	28	31	35	51	42	50	46	17	7	5	326	12.0
1,000,000 to 5,000,000	0	3	20	13	14	12	8	11	14	24	9	3	133	4.9
Over 5,000,000	0	0	0	1	0	0	0	2	1	1	0	0	5	.2
Total	202	191	248	265	243	229	243	195	228	251	233	193	2 721	100.0
Samples of milk used for churning only	0	0	0	8	0	26	32	24	4	0	0	0	94	

TABLE No. 5.

Bacteriological Examination of Pasteurized Milk, Showing the Number and Percentage of Samples in Each Class.

CLASS BACTERIA PER C. C.	January	February	March	April	May	June	July	August	September	October	November	December	Total	Percentage of Total of Each Class
Below 10,000.....	2	3	3	3	5	6	5	3	4	2	3	4	43	62.4
10,000 to 25,000.....	0	1	1	1	0	2	2	1	1	1	3	0	14	20.3
25,000 to 50,000.....	0	0	0	1	0	0	0	1	0	1	0	0	3	4.4
50,000 to 100,000.....	0	0	0	0	0	2	0	0	0	1	1	0	5	7.2
100,000 to 250,000.....	0	0	0	0	0	0	0	0	0	2	0	0	2	2.9
250,000 to 500,000.....	0	0	0	0	0	0	1	0	0	0	0	0	1	1.4
500,000 to 1,000,000.....	0	0	0	0	0	0	1	0	0	0	0	0	1	1.4
Total	2	4	5	5	5	10	9	5	5	8	7	4	69	100.0

• Respectfully submitted,

AUBREY H. STRAUS,
City Bacteriologist.

REPORT OF CONSULTANT IN DIPHTHERIA.

Dr. C. C. Hudson,
Health Officer,
Richmond, Va.

Sir:

I have the honor to submit herewith my report of cases of laryngeal diphtheria seen for the Health Bureau for the year ending December 31, 1920, also appended tabulated statement of laryngeal cases seen for the Health Department for fourteen years, 1907-1920, inclusive.

INTUBATED				NOT INTUBATED			TOTAL			
Recovered	Died	Total	Case Fatality Per Cent.	Recovered	Died	Total	Recovered	Died	Total	Case Fatality Per Cent.
11	0	11	0	8	0	8	19	0	19	0

All of the cases intubated presented sufficiently definite signs of laryngeal stenosis to require intubation on first call. Two of the cases coughed up the tube on the fifth day, and one on the second day, but none of the three cases needed reintubation. One case, extubated on the seventh day, required reintubation four hours later. This is rather unusual, since reintubation is not generally required after the lapse of an hour or two.

Only one other case in the series required reintubation and this proved to be a very troublesome one. A splendid looking girl, 6 years old, had had nasal discharge and had been croupy at night for a week. She had been hoarse for three days, and was brought to the City for intubation twelve hours after dyspnea began. Intubation was imperatively needed. Prompt relief was obtained and the child did well.

Extubation was done on the seventh day, having been postponed a couple of days because of the excessive amount of mucous present. She had been given 30,000 units of antitoxin when intubated, and presented every appearance of a child that would not require reintubation. However, the tube was urgently needed in twenty minutes. Extubation was done again in eight days with the same result, and again in six days with no better result than that she went thirty minutes without the tube. We decided to wait two weeks for the next extubation, which was done December 28th, but the tube had to be replaced in fifteen minutes.

We were discouraged, because at one or two former extubations sodium bromide had been freely administered, hoping to tide the patient over the period of laryngeal spasm that followed extubation. This child was extremely nervous, but very intelligent, and although suffering great

dyspnea at intervals, after extubation, fought bravely to get by without reintubation. We felt that the latter extubations had failed largely because of her excessive nervousness, apprehension and previous disappointments, so during the next eight days the child was systematically encouraged to believe that she could go without the tube "next time." The fifth and final extubation was done 44 days after the first intubation. Several times during three hours following the last extubation it seemed that the tube would have to be reinserted, but by the combined assistance of the family physician, the mother and the nurses in diverting the child's mind, we succeeded in tiding her safely over.

One of the cases has the following history: During my absence from the City, a throat specialist did a tracheotomy instead of an intubation for laryngeal diphtheria. The child subsequently developed pneumonia, from which he recovered. Later he found the child unable to breathe without the tracheotomy tube. I first saw the child twenty days after the tracheotomy and removed the tracheotomy tube and inserted an intubation tube into the larynx, which remained in place nine days until the tracheotomy wound healed. The intubation tube was then removed and the child was discharged from the hospital three days later. The child was in the hospital from the time of the tracheotomy, September 5th, until October 7th (three days after extubation). The absurdity of tracheotomy to relieve dyspnea of laryngeal diphtheria of the normal larynx is quite apparent.

Of the 11 cases intubated; 9 (81%) ran practically an uneventful course, wearing the tube from 5 to 7 days, and were quickly restored to health.

None of the 8 laryngeal cases in which intubation was postponed on first call came to intubation, or required a second visit. With particular pride we record the fact that we have not lost a single one of the 19 laryngeal cases handled this year for the Bureau of Health.

Attention is called to the importance of early administration of antitoxin. Do not wait for laboratory reports if you have reasons to suspect diphtheria. A single dose ample for the age and size of the patient should be given at one time, rather than stringing it out over 24 hours. It is better to err upon the side of too much than too little, for we do not believe that untoward results follow the administration of very large doses of antitoxin.

Physicians are urged to confer with the Bureau of Health office immediately upon the discovery of a laryngeal case, so that the Medical Inspector may arrange in advance for intubation should it be subsequently required. Laryngeal diphtheria is a treacherous condition. Do not jeopardize the life of your patient by waiting for the appearance of cyanosis, fatal stenosis and other signs of impending death before calling for intubation. Many children who so easily could have been saved have choked to death because intubation was too long postponed. The sad fatalities of former years are growing less frequent, because physicians generally are calling for intubation earlier. The operation never injures the patient. The relief afforded is wonderful and the chances of recovery are greatly enhanced. An active, hearty co-operation between the physicians and the Bureau of Health is earnestly requested.

*Cases of Laryngeal Diphtheria Seen for the Richmond Health Bureau for
Fourteen Years, 1907-1920.*

YEAR	INTUBATED				NOT INTUBATED			TOTAL			Cases Fatality Per Cent.
	Recovered	Died	Total	Case Fatality Per Cent.	Recovered	Died	Total	Recovered	Died	Total	
1907.....	5	1	6	16.7	1	0	1	6	1	7	14.8
1908.....	3	1	4	25.0	0	0	0	3	1	4	25.0
1909.....	5	1	6	16.7	0	0	0	5	1	6	12.5
1910.....	14	2	16	12.5	2	0	2	16	2	18	10.0
1911.....	22	1	23	4.4	4	1*	5	30	2	32	6.3
1912.....	7	2	9	22.2	7	0	7	14	2	16	12.5
1913.....	7	4	11	36.4	2	0	2	9	4	13	30.8
1914.....	9	0	9	0.0	9	1†	10	18	1	19	5.3
1915.....	11	2	13	12.5	9	0	9	23	2	25	8.0
1916.....	7	1	8	12.5	5	0	5	12	1	13	7.7
1917.....	10	1	11	9.0	9	0	9	19	1	20	5.0
1918.....	2	1	3	33.3	4	0	4	6	1	7	14.3
1919.....	6	2	8	25.0	3	0	3	9	2	11	18.2
1920.....	11	0	11	0.0	8	0	8	19	0	19	0.0
Total.....	122	19	141	13.5	71	2	73	193	21	214	9.8

*Congenital stenosis of larynx, making intubation impossible. Died in spite of tracheotomy

†Neglected septic case, laryngeal symptoms not extreme; died from sepsis in a few hours.

Respectfully submitted,

P. D. LIPSCOMB, M. D.,
Consultant in Diphtheria.

REPORT OF CHIEF NURSE.

Dr. C. C. Hudson,
Health Officer,
Richmond, Va.

Sir:

I have the honor to submit, herewith, my report for the year ending December 31, 1920, briefly reviewing the work of the Nursing Staff of the Bureau of Health.

INFANT WELFARE WORK.

During 1920, the Infant Welfare Work was heavier than in previous years. We try to expend our efforts where they are most needed, so it is that most of our work was done in the congested districts.

There were 241 more babies listed during 1920 than in the preceding year. Although we had 373 fewer babies under supervision during the year, yet we supervised more babies under one year of age, as on January 1, 1919, we had left on our list many babies in their second year which were soon discharged.

We listed nearly half of the babies born in the City during the year.

We investigated the death of every baby between the age of seven days and one year. In many cases, these investigations have shown that more supervision had been needed, as in some cases the deaths were caused by ignorance and lack of care.

The following is a summary of the Infant Welfare Work during 1920:

Hours spent in work for the prevention of infant mortality.....	11,143
Number of visits paid for the prevention of infant mortality....	17,836
Birth certificates investigated	101
Babies on list brought over from 1919.....	1,440
New babies listed during 1920	2,038
Total number of babies under supervision during 1920.....	3,478
Number of babies discharged during 1920.....	1,956
Number of babies on list at end of year.....	1,522
Deaths from diarrhea and enteritis among supervised babies....	28
Deaths from respiratory diseases among supervised babies....	40
Deaths from all causes among supervised babies.....	125

CHILD WELFARE STATIONS|

There has been a great increase in the attendance at the Child Welfare Stations.

Station No. 1 was moved to much better quarters next door, being now located at No. 2431 Venable Street. This station, conducted by Dr. J. S. Weitzel and supervised by Miss Barrow and Miss Rice, gave 1,325 treatments to babies and children under 12 years of age during 1920, the proportion of treatments given to colored and white being about equal.

Station No. 2, located at the City Home, was conducted by Dr. J. S. Weitzel and supervised by Miss Irving and Miss Roller. This station gave 436 treatments to babies and children under 12 years of age, mostly colored.

Where there is no attending physician, all mothers are urged to bring their babies and children under 12 years of age to a Welfare Station to be weighed, measured and examined. If there is any malnutrition present due to incorrect feeding, advice is given as to proper feeding. If there is any physical correction needed, they are referred to a hospital or to a specialist. The nurse then follows up these cases and sees that they are treated.

The following are some of the diagnoses made at the clinics: Malnutrition, enlarged tonsils, adenoids, pulmonary tuberculosis, rickets, eczema, whooping cough, chickenpox, exophthalmia, syphilis, paralysis, intestinal indigestion, defective eyesight and many others.

The following is a summary of the work at the stations located at 2431 Venable Street and City Home:

Number of patients re-admitted	58
Number of new patients	520
Children	200
Babies under one year	378

	White.	Colored.	Total.
Total patients	195	383	578
Number of visits	755	1,006	1,761

The Instructive Visiting Nurse Association, with the co-operation of the Bureau of Health, opened a Child Welfare Station at 1104 West Cary Street in June. Dr. H. S. Stern has charge of the babies and children, and Dr. Wm. P. Rucker has charge of the pre-natal work. Both clinics are growing and, by the end of this year, we hope to have a good attendance.

In June, a pre-natal clinic was opened at 2431 Venable Street, with Dr. Joseph Bear in charge.

From the investigation of deaths occurring from puerperal causes, we found that only a very few of these mothers had ever received any pre-natal examination or instruction. If every expectant mother could be given pre-natal care and instructions, the deaths from puerperal causes would be greatly reduced and many more healthy babies born. The best obstetricians at the time of delivery often cannot overcome the conditions caused by lack of care.

The following table illustrates the branch of this work done by our nurses in the homes:

Number of pre-natal cases carried over from 1919.....	118
Number of pre-natal cases listed during 1920.....	208

Total number of pre-natal cases instructed..... 326

Of this number there were:

Safely delivered	232
Moved—unable to locate	8
Abortions, miscarriage and stillbirths	14
Left City	8
Referred to I. V. N. A.	1
False conception	2
Died from tuberculosis four months before term.....	1
Number of pre-natal cases forwarded	60

Mortality Among Babies Having Pre-natal Care, During 1920.

Total Supervised	Nurses' Visits	Miscarriages and stillbirths	Live Births	DEATHS AMONG PRE-NATAL BABIES			
				Under 1 day	1-7 days	8-30 days	Total
326	694	14	232	2	3	4	9

TUBERCULOSIS WORK.

The tuberculosis work has been carried on as heretofore. Instruction is given on the care of the patient in his own home and precautions necessary to prevent the spread of the disease. Patients are urged to go to a sanatorium when possible, but as the sanatoriums are usually filled many have to wait some time before they are admitted.

The following is a summary of the tuberculosis work:

January 1, 1920, tuberculosis cases on list.....	399
Reported during 1920 to the Bureau of Health.....	614
New cases visited by the Nurses.....	318
Tuberculosis cases under supervision December 31, 1920.....	399
Hours spent in tuberculosis work	2,180
Hours spent in Tuberculosis Clinic	828
Hours spent in the districts	1,352
Number of visits paid in tuberculosis work.....	3,513

VENEREAL DISEASE WORK.

The nurse for venereal diseases was transferred to our staff July 1, 1920. She and the nurse employed by the Medical College Dispensary were to do the Dispensary work and some follow-up work in the homes. The colored social worker from the Interdepartmental Bureau of Social Hygiene was also put under the supervision of the Health Bureau for follow-up work.

We were sorry that, just as we had systematized the work and felt that we were accomplishing something in the follow-up work, one nurse was withdrawn by the Dispensary and the social worker was withdrawn

by the Bureau of Social Hygiene, and our nurse was assigned to work entirely at the Dispensary, with the exception of one hour once a week at the jail clinic. We hope that this work may be taken up again one day.

INFLUENZA WORK.

The influenza epidemic last January and February, although mild, entailed a great deal of extra work. In co-operation with the Instructive Visiting Nurse Association, we had our work arranged to take care of the situation should this epidemic have duplicated the one of 1918. We had volunteer assistance in the office and field, employing the necessary extra nurses and a clerk. There were 1,856 visits paid to "Flu" cases during the ten days this epidemic lasted.

The good results we have obtained are due to the faithful, capable and interested efforts of the nurses and the specialists in charge of the clinics.

The Associated Charities have helped us a great deal in relieving persons needing financial assistance.

The students from the School of Social Work and Public Health have worked with us their usual time, and we have endeavored to make their experience profitable and interesting to them.

There have been many changes in our staff during the year. Miss Daly was granted a furlough early in the year and has never been able to return to work. We were sorry to lose Miss Campbell, Miss Crist, Miss Moxon and Miss Snedaker from our staff, as they were a credit to it.

Respectfully submitted,

E. G. FRIEND,
Chief Nurse.

REPORT OF THE INSPECTOR OF MILK AND FOOD SUPPLIES.

Dr. C. C. Hudson,
Health Officer,
Richmond, Va.

Sir:

I have the honor to submit the following report of the work of the Food Inspection Division for the year ending December 31, 1920.

The following table shows the number of inspections made for various causes during the year:

	Visited.	Passed.	Notified to Improve.
Abattoirs and Slaughtering Places.....	78	26	52
Retail Meat Dealers	2,367	1,852	515
Vegetable and Fruit Dealers (retail).....	412	271	141
Candy Factories and Retail Confectioneries.	367	200	167
Commission Houses	4,632	4,226	406
Ice Cream Factories	128	41	87
Bottling Plants	172	92	80
Soft Drink Merchants	2,963	2,174	789
Fish, Oyster and Crab Dealers.....	1,828	1,404	424
Hucksters	3,698	2,967	731
Miscellaneous	3,015	534	2,481
Restaurants	2,198	1,443	755
Grocers	4,207	3,130	1,077
Bakeries	216	146	70
Total	26,281	18,506	7,775

The following table shows the number of inspections made during each month of 1920:

	No. Places Visited.	No. Places Passed.	No. Places Notified.
January	2,433	2,016	417
February	2,426	1,970	456
March	2,179	992	1,187
April	2,698	1,303	1,395
May	2,019	1,429	590
June	1,840	1,541	299
July	1,670	1,156	514
August	2,274	1,535	739
September	2,258	1,692	566
October	2,172	1,542	630
November	2,032	1,461	571
December	2,280	1,859	421
Total	26,281	18,496	7,785
Monthly average	2,190	1,541	649

FOOD PERMITS.

Permits issued	316
Food permits revoked or suspended.....	3
Cash to treasurer for permits	\$632 00
Cases in Police Court	23
Fines imposed	\$100.00
Samples taken	3,192

FOOD PRODUCTS CONDEMNED.

	Pounds.	Value.
Canned Goods	89,667	\$ 2,121 31
Cheese	762	190 50
Fish	147,870	3,893 50
Eggs	209	93 28
Game	2,463	519 15
Fruits	4,720	144 00
Meats	2,606	483 30
Milk Products	539	102 60
Oysters	524	93 28
Poultry	676	316 43
Vegetables	46,390	2,313 20
Total	296,426	\$10,270 55

Summary—1906-1920, Inclusive.

YEAR	No. of Inspections	Food Condemned Lbs.	Value of Food Condemned	Samples of Milk Taken	Food Permits Issued	To Treasurer of Richmond
1906.....	8,882	336,095	\$ 19,485 85	1,282	128	\$ 256 00
1907.....	7,082	150,075	6,005 75	1,388	201	402 00
1908.....	9,213	311,581	7,551 67	1,473	234	468 00
1909.....	9,212	110,877	3,590 47	1,631	222	444 00
1910.....	7,705	90,409	3,284 40	1,614	212	424 00
1911.....	8,608	123,782	3,564 33	2,029	387	774 00
1912.....	10,440	251,207	5,969 38	1,671	267	534 00
1913.....	7,479	163,206	4,380 87	2,592	221	442 00
1914.....	12,619	179,028	5,341 49	2,403	268	536 00
1915.....	13,212	126,020	6,936 48	2,282	349	698 00
1916.....	11,460	109,746	4,342 48	2,425	252	504 00
1917.....	11,098	181,359	8,751 01	2,566	353	706 00
1918.....	27,907	394,500	25,262 46	2,464	227	454 00
1919.....	86,650	251,185	18,028 51	2,915	558	1,116 00
1920.....	26,281	296,426	10,270 55	3,192	316	632 00
Total.....	207,848	3,075,496	\$132,665 70	31,830	4,195	\$8,390 00
Average for 15 years	13,857	205,033	\$8,844 38	2,122	280	\$ 559 33

Mr. Donati, the other Food Inspector, and I regret very deeply the loss of Mr. E. M. Noble, the Chief Food Inspector, who died in November. Mr. Noble had worked with us for years and we feel very keenly his loss.

Respectfully submitted,

JOHN T. GILL,
Acting Food Inspector.

REPORT OF DAIRY INSPECTOR.

Dr. C. C. Hudson,
Health Officer,
Richmond, Va.

Sir:

I have the honor to present to you my report as Dairy Inspector for the year ending December 31, 1920.

Number of visits to dairy farms.....	1,749
Number of dairies visited and scored.....	168
Number of scores made.....	1,372

Class	Jan.	Feb.	Mch.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
50 to 60.....	0	0	0	0	0	0	0	0	0	0	1	0
60 to 70.....	8	7	8	5	9	3	10	9	7	7	6	9
70 to 80.....	85	73	85	91	91	91	87	80	83	83	87	61
80 to 90.....	19	16	28	22	26	20	24	19	28	22	25	21
90 to 100.....	1	1	0	1	0	2	2	1	1	2	2	3
Total number of scores made during month.....	118	97	121	119	126	116	123	109	119	114	121	94
Number of dairies scored which continued to sell milk and cream during month.....	111	96	121	119	125	116	121	108	118	114	120	92
Average score.....	75.5	74.8	75.3	75.5	75.4	75.8	75.9	75.6	75.6	75.5	75.7	75.9

Permits refused	25
Permits suspended	3
Permits suspended and restored	3
Permits revoked during year	10
Permits restored that were revoked during year.....	8
Average score of ten places whose permits were revoked.....	64.4
Average score of eight places whose permits were revoked and restored	74.5
Number of Grade A shippers placed in Grade B Class during year.	4
Number of Grade A shippers placed in Grade B Class and restored to Grade A standing	4
Diseased cows found and use of milk from same ordered discontinued (5 sore teats, 6 with cowpox, 2 injured teats, 3 inflamed bags)	16
Gallons of milk returned to shipper on account of milk cans being dirty	30
Gallons of milk returned to shipper on account of arriving in City in a sour condition	160
Gallons of milk returned to shipper on account of being dirty....	13
Gallons of milk ordered to be churned on account of high temperature	160
Gallons of milk ordered to be churned on account of high bacteria counts	9,850
Samples of milk taken for bacteriological examination.....	2,884
New barns built during year	13
New milk houses built during year.....	13

Sets of blue prints for barn construction furnished during year..	42
New barns under construction	6
New milk houses under construction	6
Number of new milk shippers to Richmond during year.....	20
Number of shippers that have discontinued shipping to Richmond during the past year	22

The citizens of Richmond have every reason to be proud of the excellent milk supply of their City. The Dairy Inspection Division of the Richmond Health Bureau, with the co-operation of the milk producers and dealers, is always working to secure improvement in the production, handling and distribution of this most important food product, with the result that most excellent conditions are in evidence at the present time.

In the first State-wide milk contest held in Richmond during the month of February, milk from the Richmond supply won first prizes in the two classes in which it competed. The feature of the contest was that the samples of milk for the contest were collected from the contestants unknown to them. This assured a more representative sample of the product.

Prizes were offered for the highest scoring milk in each of the following classes:

Class 1—Retail Bottled Milk (Raw).

Class 2—Wholesale Milk (Raw).

Class 3—Market Milk (Pasteurized).

Milk from the Richmond supply competed in classes two and three, in both of which it took first prize. The samples of milk in the contest were scored for bacteria, flavor and odor, sediment, fat, solids not fat, and, where the milk was bottled, for the appearance of the bottle and cap.

The migration of farm labor to the cities during the past few years has made the problem of labor for the farms a most difficult one to solve. High wages in cities have afforded an almost irresistible lure to farm labor, to say nothing of the instinct for amusement to be satisfied in the cities. The employer of labor in the country must realize that standards of living have changed, and none of us are satisfied with the comforts and conveniences of twenty years ago. Working on a farm must be made more attractive in the future than it has been in the past before we can expect a great rush to the farms. Besides good wages, the hired man should be furnished a clean room, comfortable bed and good board. Working on a dairy farm is less attractive than any other type of farming, for not only is part of the work dirty, but there are no holidays in the dairy business; the cows must be milked 365 days in the year.

People living in the cities must be willing to pay a fair price for the products of the farm, for they should realize that life in the city is only possible because out on the farm somewhere somebody is producing raw material for their food and clothing. Our cities can prosper only if enough people remain in the country to produce the food, not only for themselves, but also for our large city population.

In the early part of September two cows in one of the dairy herds supplying milk to the Richmond market died suddenly. Lead poisoning was at first suspected by the attending veterinarian. Federal and State authorities were called to assist in the investigation, and the sale of milk from the farm prohibited in the City.

Cows on the farm continued to die, and it was not until five cows had died that the veterinarians were able to pronounce the disease hemorrhagic septicemia, a form of blood poisoning. The total loss of cattle amounted to seven cows and one bull. I made a number of visits to the farm during the sickness of the cattle and my observation of the disease was as follows: The cattle lost their appetites and the milch cows gave less milk than they had been giving before being attacked by the disease. The passages from the bowels were blood-stained; the eyelids highly inflamed, causing tears to flow down the cheeks; and the temperature of the sick cattle was very high. One cow showed a temperature of 107 F. at 5 P. M. This cow died before 6 A. M. the following day.

The disease proved to be more fatal among the younger cattle, as all the cows dying from the disease were under five years of age.

One of the most serious problems to handle in a dairy herd is contagious abortion. The introduction of this disease into the herd is one of the most difficult to guard against, since, in most herds, new cows are constantly being added. This disease is considered by many to be more serious than tuberculosis, because so little is known about it and no specific remedy or preventive has been found for it. The safest plan is to raise your own cows, but as this is not always practicable, every effort should be made when cows are purchased to inquire into the history of the herd from which the cows are bought and find out when the cow last calved, also if she had a living calf born during the past year.

Dairymen should understand the limitations of the tuberculin test, know how tuberculosis may be spread and how healthy animals can be infected. There are many cases where cows are purchased which do not react to a sixty day retest. These cows are placed on farms and allowed to associate with cows in herds from which tuberculosis has never been completely eradicated. The result is that in a year or so, on subsequent tests, reactors are often found among the cows that have been added to the original herd, they having become infected from some tubercular cows in the old herd.

Another dangerous practice is to purchase cows from herds known to contain tuberculosis, even though none of the cows purchased react at the time they were bought or sixty days after, for the cows bought had been exposed to the disease and the test does not always reveal animals which have only lately been exposed or when the disease is in its incipency.

The proper disinfecting of the barns and surrounding premises on farms where reacting animals are found is another very important matter. It is necessary to do a certain amount of preliminary work to get the barn in shape for maximum results. The surface of the ceiling, also

walls and floor of the barn, should receive a thorough cleaning, all cobwebs being brushed down, and where there is any accumulation of filth, the same must be removed by scraping. The stable yard must also receive a good cleaning, and several inches of the earth or surface soil of the stable yard must be removed to some place inaccessible to the live stock on the farm. Where surface soil is removed, it can be replaced with soil from some part of the farm that has not been visited by live stock. After cleansing, the disinfectant should be applied. The entire inside of the stable should be saturated with the disinfectant, special attention being given to the gutters and feeding troughs. Since watering troughs play an important part in the transmission of disease, they, also, should be disinfected in a most thorough manner. Each trough should be emptied and thoroughly scrubbed, then filled with a disinfecting solution and left covered for twenty-four hours. At the end of this time disinfection should be complete. The solution is then drawn off and the troughs thoroughly rinsed to remove all traces of the disinfectant.

During the past year 46 herds, containing 1,718 cows, the product from which is being sold on the Richmond market, were tested for tuberculosis. From this number 30, or less than two per cent., reacted. This remarkable showing is due to the fact that most of these herds had been previously tested. It will be noted that 14 out of the 30 reactors were found in one herd; the other 16 reactors were found in eleven herds, five herds showing two reactors and six herds showing one reactor in each herd. A summary of the herds tested is as follows:

Number of Herds.	Number of Cows Tested.	Number of Reactors.	Number of Suspects.	Number Passing Test.
1	35	0	0	35
2	78	2	2	74
3	45	0	0	45
4	42	0	1	41
5	68	1	0	67
6	84	2	1	81
7	28	0	0	28
8	50	0	1	49
9	10	0	0	10
10	41	0	1	40
11	66	0	0	66
12	11	0	0	11
13	18	0	0	18
14	38	0	0	38
15	80	0	5	75
16	31	0	0	31
17	32	1	0	31
18	32	2	1	29
19	32	1	1	30
20	31	0	0	31
21	21	0	0	21

22	34	0	0	34
23	13	0	0	13
24	31	1	1	29
25	23	0	0	23
26	9	0	0	9
27	42	0	0	42
28	25	0	0	25
29	25	0	0	25
30	23	2	2	19
31	15	0	0	15
32	21	0	0	21
33	34	0	0	34
34	32	14	1	17
35	38	0	0	38
36	45	0	5	40
37	33	0	1	32
38	25	0	0	25
39	79	0	0	79
40	38	1	1	36
41	26	0	0	26
42	89	0	0	89
43	21	0	0	21
44	52	1	0	51
45	53	2	0	51
46	19	0	0	19
Total....1,718		30	24	1,664

Note: Test No. 4 is a retest of test No. 3.
 Test No. 6 is a retest of test No. 5.
 Test No. 29 is a retest of test No. 28.
 Test No. 37 is a retest of test No. 36.

All of the tests during the year, with the exception of Nos. 7, 15, 23, 24, 30, 31, 35 and 43 were made by a veterinarian from the Bureau of Animal Industry, Washington, D. C. Tests Nos. 7, 15, 23, 24, 35 and 43 were made by a private veterinarian and the tests were approved by the State Veterinarian. Tests Nos. 30 and 31 were applied by a veterinarian from the State Veterinarian office.

During the month of June Richmond faced a milk bottle famine, owing to the tie-up in freight shipments, which the entire country experienced at that time, and it was only due to the assistance rendered by some of the officials of the Chesapeake and Ohio Railroad that we were able to obtain sufficient freight shipments of bottles to enable the distributing plants to bottle the milk before delivery to the consumer.

The misuse of milk bottles is a tremendous tax upon the milk business, which is necessarily finally paid by the consumer. The bottle loss in Richmond amounts to over 400 bottles per day—some broken, some withheld by customers, some so discolored or mistreated that they are

destroyed on their return to the distributing plants. People have displayed great ingenuity in putting milk bottles to every use but the one for which they are intended—holding milk. People should appreciate the value of other people's property, and also the high class of service a milk bottle represents.

I find, from very close study of the dairy farms visited, that the dairy farmer who feeds his cows well is the one who is making the most money. Nothing will take the place of skillful breeding for big milk production, yet skillful feeding will prove a big factor in increasing the milk check. It is only the food eaten beyond that required for body maintenance which gives returns at the pail.

Many months have passed since feed prices have been as favorable to profitable milk production as they are today for men selling their product on the Richmond market. Concentrates have dropped about fifty per cent. of their costs a year ago, but the price of milk to the producer remains the same in Richmond.

The best money-maker on a dairy farm is a well-bred sire who has dairy production in his blood and who has the power to transmit it to his offspring. By the use of such a sire, the producing capacity of the cows in the herd can be increased. Great care should be exercised in the selection of these sires. The fundamental principle of all breeding is that like begets like, or the likeness of some ancestor, so the first thing before purchasing a sire is to see that he is descended from good milkers. Do not think that because a bull is pure bred, he is the individual you want, for there are any number of bulls whose purity of blood can be boasted of by their owners, yet when we look up their ancestors for a few generations back, we find a lot of scrubs as far as milk and butter fat production is concerned. Here is where the "papers" which should accompany every pure bred bull prove their value. They not only indicate that the bull is pure bred, but they tell us the history of his ancestors and what they were capable of doing. It is always well, no matter how reliable the seller may be, to decline to purchase any bull with which it is impossible to get his papers. Breeding from any but a sire whose ancestors possessed known producing qualities is a step in the wrong direction and is, in a large measure, the cause of there being so many poor dairy cows on the farms at the present time. As far as young bulls are concerned, breeding and individuality are all we have to judge from. With a bull four years old, however, we should have another index of his value; what his offspring are capable of doing. If his daughters prove to be better producers than their dams, you have the kind of bull every breeder is looking for.

Never purchase a bull that shows any symptoms of disease or feebleness.

The milk producer of today must realize that a cow stable is a milk factory in which the most delicate and most easily contaminated food is handled, and therefore should be a building thoroughly planned, conveniently arranged and carefully constructed, with abundant light, plenty of ventilation and easy to keep clean. The Richmond Health Bureau, through its dairy division, is always ready to assist dairymen

in the construction and equipping of sanitary barns and milk houses, and also to advise as to the best methods for handling their product.

As it has only been necessary for milk producers selling their milk wholesale in Richmond to deliver 8.5 pounds of milk for a gallon, there seems to be some misunderstanding regarding the correct weight of a gallon of milk. In general, the specific gravity of milk and cream depends on the percentage and relation of solids, and the temperature at which the determinations are made. The weight of one gallon of water at 68° F., according to the U. S. Bureau of Standards, is approximately 8.32162 pounds. Using this figure as the weight of water, and using the specific gravities of milk and cream of various percentages as given in U. S. Department of Agriculture Bulletin No. 98, the following table has been worked out by the Dairy Division of the U. S. Bureau of Animal Industry.

	Percentage of Fat.	Specific Gravity.	Weight Per Gallon.
Water .....	....	1.000	8.3216 pounds
Skim Milk .....	.025	1.037	8.6295 "
Milk	3.	1.034	8.6045 "
Milk	3.5	1.033	8.5962 "
Milk	4.	1.032	8.5879 "
Milk	5.	1.031	8.5796 "
Cream	18.	1.015	8.4564 "
Cream	20.	1.013	8.4298 "
Cream	30.	1.004	8.3549 "
Cream	40.	.995	8.28 "

The weights in the table above are given at 68° F., because this is the temperature that was used in determining the specific gravities. For all practical purposes the weight of milk testing from 3 to 5 per cent. may be figured at 8.6 pounds per gallon.

Dairymen must also realize that when milk cans contain "dents" they will not hold as much milk as if they were in perfect condition. Milk cans tested by the Chief Dairy Inspector of the City have shown that where the cans were dented there was a difference of from one to three pounds of milk between can measure and weighed contents.

During the past year it has been necessary to call the attention of a large number of dairymen to the high bacteria counts found in samples of milk taken from their cans on the arrival of the milk at the distributing plants in the City. Efforts made by the Health Bureau to determine the causes of these excessive bacteria counts resulted in the opinion that in nearly all cases investigated the high counts were due to improper handling and cooling of the milk on the farm, or failure to see that cans returned from the distributing plants in the city were properly cleaned before using.

Dairymen must realize that in order to produce milk with a low bacterial content, it is necessary that the cows' flanks, hocks and udders are clean, and the udder and teats washed and wiped before each milking. The milk utensils must be thoroughly cleaned with scalding water

after each milking and protected from contamination when not in use, and rinsed with clean water just before starting to milk. The stable must be kept clean and milking done with clean, dry hands. Wet-hand milking is a dirty habit and also causes chapped teats. Small-top milking pails must be used. Special attention must be given to the cleaning of the strainer cloths, and where milking machines are in use, to the parts of same; also to replace all worn and broken teat cups to the machine. See that milk cans returned from the distributing plants are cleaned before using. Milk must be promptly cooled, and where it is delivered once a day, the evening milk being held over night on the farm, some provision must be made to store it at a low temperature. This necessitates the use of ice in the warm weather.

It was found, during the investigations of some of the high bacteria counts, that milk was allowed to stand in the milk house all night or placed in tubs or vats of water, the temperature of the water at the time of its being placed in the tubs or vats being 60° F. or above, the temperature of the atmosphere being much higher. It was therefore reasonable to suppose that, as the atmospherical temperature was 75 or 80 degrees during the night, both the water in the tubs or vats and the milk in the cans would gradually rise to the same temperature, causing the bacteria counts in the milk to increase very rapidly. Some dairymen cool the milk held over night on the farm the following morning by running the milk over a cooler or aerator. This results, in most cases, in the arrival of the milk in the city at a low temperature, but the milk will show a high bacteria count on account of its being held during the night at a high temperature.

Present indications are that Richmond will have a large number of new milk shippers in the near future. A number of farmers who have been engaged in other lines of farming are realizing that dairying is one of the most dependable branches of this industry. Where a good market is available for the product, it assures a steady income, to say nothing of the increased fertility of the land where the cattle are kept. This means larger crops on less acreage.

With the increase in the number of milk producers, we will have a larger supply of milk for our City. This means a surplus of milk unless we have an increase in consumption. No effort should therefore be spared by all engaged in the production, handling and distribution of milk to see that the consumer not only receives milk produced and handled under the best sanitary conditions, but that they receive milk that looks like milk and not a blue, tasteless fluid. Milk low in butter fat certainly does not satisfy the buyer. The idea of breeding cows with only one object in view, namely, quantity, is proving very harmful to the market milk industry. Milk to be satisfactory must have plenty of body to it and should taste and look like milk.

I cannot close my report without thanking the dairymen and milk distributors for their co-operation with this Bureau in its effort to see that the people of Richmond receive a clean, safe milk. With few exceptions, dairymen try to conform with the regulations of this Bureau for the production and handling of milk on the farms.

I also wish to commend the work of Mr. R. M. C. Harris, who has so ably assisted me during the year.

Respectfully submitted,

T. J. STRAUCH,
Chief Dairy Inspector.

REPORT OF THE CHIEF PLUMBING INSPECTOR.

Dr. C. C. Hudson,
Health Officer,
Richmond, Va.

Sir:

I have the honor to submit to you my annual report for the year ending December 31, 1920.

During the past year 1,024 inspections and tests were made in 376 new buildings which were completed. In old buildings 958 alterations and additions were inspected. There has been a considerable falling off in building operations, especially in residential work, since midsummer, due to the very high cost of material and labor, but in the meantime considerable improvements have been made in the plumbing and drainage systems in many of our large manufacturing establishments and modern and up-to-date fixtures have been installed in many plants. In most cases these were very large contracts, requiring a great number of inspections.

A large number of public garages were erected during the year which were fully equipped with all sanitary arrangements. Notwithstanding the dullness in residential work, we were kept busy most of 1920.

At present the outlook for building operations is not very encouraging for the spring, being held back by the high cost of material and labor, but the great demand for houses may bring a change sooner than expected.

My tabular report follows:

My assistant, Mr. T. W. Mitchell, has been very efficient in the discharge of his duties, and we were able to meet all calls for inspections without causing unnecessary delays to the master plumbers.

Respectfully submitted,

T. M. LANDERS,
Chief Plumbing Inspector.

REPORT OF PLUMBERS' EXAMINING BOARD.

Dr. C. C. Hudson,
Health Officer,
Richmond, Va.

Sir:

I submit my report as Secretary of the Plumbers' Examining Board for the year ending December 31, 1920.

Meetings held during the year.....	8
Journeyman plumbers examined	16
Number examined and found unqualified.....	3
Number examined and licensed	13
Number of licenses renewed.....	138

Respectfully submitted,

THOS. M. LANDERS,
Secretary Plumbers' Examining Board.

REPORT OF WHITE TUBERCULOSIS DISPENSARY.

Dr. C. C. Hudson,
Health Officer,
Richmond, Va.

Sir:

I have the honor to submit herewith my annual report of the work done at the White Tuberculosis Dispensary and by the district nurses of the Bureau of Health during the year 1920.

There were 599 visits to the White Dispensary by patients. Of the patients attending in 1919, 52 returned in 1920 and 155 new patients presented themselves for treatment, making a total of 207 patients for the year. The greatest number attending in any one month was 43 in November, and the smallest number was 22 in August. The average attendance per month was 35.

The patients who attended are classified as follows:

Sex: 106 males; 101 females.

Age: 85 under 20 years; 84, 20 to 40 years; and 38 over 40 years of age.

Diagnosis: 53 tubercular; 46 non-tubercular; 108 undetermined.

Referred: 12 to other dispensaries; 6 to City Hospital or sanatoria.

Of the 53 tubercular patients, 33 attended fewer than four times, and hence are not classified below as to condition after treatment. Many of these cases came only once, as did also many of those whose diagnosis was undetermined.

The condition after treatment of the 20 tubercular patients who attended four or more times was as follows: Improved, 7; unimproved, 11; progressive, 0; died, 2. There were 7 deaths among dispensary patients during the year not included in the above list of 20, the patients being too ill to attend more than once or twice during the year.

This year a larger number of new patients presented themselves for treatment than the total number treated last year. This year the average monthly attendance of 35 was greater by 10 per month than last year. Last year 22 per cent. of the patients were tubercular; this year 25.6 per cent. were definitely known to be tubercular. No doubt a great many of those recorded as "undetermined" were tubercular, but, as so many dispensary patients do, they discontinued their visits to the Dispensary before their chest conditions could be definitely determined.

Because of a recent arrangement with the X-ray Department of the City Hospital we may now have examinations made of chests that present difficulties in diagnosis. A dozen or more such cases have been sent to Virginia Hospital for examination. This supplies a long-felt need in our dispensary work, for we have many cases apparently incipient in which a definite diagnosis is difficult. We may also now have the Wassermann reaction made by the City Bacteriological Department of the Bureau of Health, and recently 16 specimens of blood have been submitted for examination, with one positive and 15 negative reported. Positive cases are referred for treatment to the Department of Derma-

tology and Syphilis of the City Dispensary at the Medical College of Virginia. It seldom happens that the Dispensary patient can afford sanatorium treatment. By the financial assistance of their friends or their lodges, a few patients this year have been sent to our State Sanatoriums—either Catawba or Blue Ridge—and some others, less fortunate financially, have gone to Pine Camp, our City Tuberculosis Sanatorium. It is hoped that Pine Camp, already an excellent institution, which compares favorably with others of its type, admirably located and convenient to the City, may soon be sufficiently enlarged to accommodate at least a reasonable number of the City's indigent tuberculous, and that space may be provided for taking care of such tuberculous individuals of our City as are able to pay reasonable hospital fees for such service. A combination institution for treating pay as well as free cases is imperatively needed.

"Free examination" clinics have been held by the Richmond Tuberculosis Association at regular intervals throughout the year, for white and for colored. Any one applying may have a chest examination without cost. Many open and many suspicious cases have been discovered and referred either to their physician or to the dispensary. As a result of these clinics many individuals have come to the Dispensary for treatment.

Before the days of the special tuberculosis dispensary and the visiting nurses, and before tuberculosis was known to be preventable and curable, indigent, tuberculous individuals received little or no medical attention. Now with all of these assets available for every individual, and innumerable sanatoria for those who can afford institutional treatment, there no longer exists a real reason why the number of consumptives should not be materially reduced. Consumptives, as a class, are hopeful patients, but this valuable adjunct to the treatment of any disease sometimes greatly delays their recovery, for they are prone—especially dispensary patients—to overestimate moderate improvement in their condition and far too readily relax their efforts towards "getting well," and forget that recovery means many months, perhaps years, of careful living and persistent practice of a rigid regime. So many of our dispensary patients quit the dispensary when improvement begins, assuming falsely that they will progress to recovery without further assistance, to return to us months later worse than when we first saw them. The remedy for this unfortunate condition is the employment of a sufficient number of visiting nurses to follow up such cases and see that they present themselves regularly for treatment, instead of spasmodically.

The work of the dispensaries shows progress this year as compared with that of last year, but where we have dozens, we should have hundreds presenting themselves for treatment and instruction.

The nurses have been, at all times, courteous, kind and attentive to the patients, and have, no doubt, devoted as much time to visiting in the homes of the tuberculous as their other duties permitted.

With great pleasure I record my sincere appreciation of the faithful and efficient services rendered the dispensaries by my associates, Dr.

Gerald A. Ezekiel and Dr. Wyndham B. Blanton. Their valuable assistance has made the Dispensary work possible.

The co-operation of the Director of Public Welfare, Dr. E. C. Levy, and of the Health Officer, Dr. C. C. Hudson, in the work of the Dispensary, and their interest in its progress is a source of gratification and pleasure.

The appended table of summaries gives a detailed account of the dispensary work, month by month.

Respectfully submitted,

P. D. LIPSCOMB, M. D.,
Chief of Clinic.

Table of Summaries of White Tuberculosis Dispensary for the Year Ending December 31, 1920.

MONTH	SEX	AGE	STAGE OF TREATMENT	DIAGNOSIS	SPUTUM REPORT	WASSER- MANN REPORT*	WEIGHT		No. of Visits	CONDITION		NO LONGER UNDER TREATMENT		Referred																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
							Increased	Stationary		Diminished	To Dispensary	Disease Arrested	Improved	Unimproved	Progressive	Died	No Case	Left City	Lost Sight of	To Other Dispensaries	To Private Phys'n	To Sanatorium																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
January..... February..... March..... April..... May..... June..... July..... August..... September..... October..... November..... December.....	Male	Under 20 Years	New Patient	Tubercular	Non-Tubercular	Undetermined	Positive	Negative	Not Examined	Positive	Negative	Not Examined	Increased	Stationary	Diminished	To Dispensary	Disease Arrested	Improved	Unimproved	Progressive	Died	No Case	Left City	Lost Sight of	To Other Dispensaries	To Private Phys'n	To Sanatorium																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
	Female	Over 40 Years	Old Patient	Discharged	Tubercular	Non-Tubercular	Undetermined	Positive	Negative	Not Examined	Positive	Negative	Not Examined	Increased	Stationary	Diminished	To Dispensary	Disease Arrested	Improved	Unimproved	Progressive	Died	No Case	Left City	Lost Sight of	To Other Dispensaries	To Private Phys'n	To Sanatorium																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
	16	12	13	7	18	14	1	17	4	10	18	.....	.....	.....	10	8	3	42	0	11	21	1	.....	.....	.....	.....	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
	13	8	9	6	10	8	3	12	11	19	15	.....	.....	.....	8	1	8	27	0	12	9	0	.....	.....	.....	.....	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
	19	16	14	7	17	8	9	23	11	19	15	.....	.....	.....	10	4	8	50	0	13	22	1	.....	.....	.....	.....	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
	21	14	12	18	24	8	8	26	4	17	21	.....	.....	.....	12	11	9	63	0	15	27	.....	.....	.....	.....	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
	12	23	8	19	8	11	8	21	4	17	21	.....	.....	.....	10	11	9	63	0	15	27	.....	.....	.....	.....	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
	20	16	10	18	8	9	27	6	13	6	17	13	.....	.....	.....	12	4	15	54	0	16	19	.....	.....	.....	.....	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
	19	16	7	18	10	17	2	27	4	19	13	.....	.....	.....	11	4	13	57	0	19	17	.....	.....	.....	.....	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
	12	10	7	8	6	16	15	2	27	4	19	13	.....	.....	.....	8	9	11	50	0	12	23	.....	.....	.....	.....	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
	22	16	11	15	23	0	9	8	21	4	20	14	.....	.....	.....	9	2	9	31	0	9	13	.....	.....	.....	.....	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
	23	18	13	14	27	0	21	8	12	7	23	11	.....	.....	.....	10	8	10	63	0	15	23	.....	.....	.....	.....	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
22	21	13	17	26	0	21	8	14	8	19	16	13	18	61	0	10	31

REPORT OF THE COLORED TUBERCULOSIS DISPENSARY.

Dr. C. C. Hudson,
Health Officer,
Richmond, Va.

Sir:

I have the honor to submit herewith my annual report of the work done at the Colored Tuberculosis Dispensary and by the district nurses of the Bureau of Health during the year 1920.

There were 359 visits to the Colored Dispensary by patients. Of the patients attending in 1919, 27 returned in 1920, and 72 new patients presented themselves for treatment, making a total of 99 patients for the year. The greatest number attending in any one month was 24 in March and the smallest number was 12 in July. The average attendance per month was 9.

The 98 patients who attended may be classified as follows:

Sex: 36 males; 62 females.

Age: 20 under 20 years; 59, 20 to 40 years; and 19 over 40 years.

Diagnosis: 43 tubercular; 7 non-tubercular; 48 undetermined.

Referred: 9 to other dispensaries; 2 to City Hospital; 2 to Piedmont Sanatorium.

Of the 43 tubercular patients, 21 attended fewer than four times and hence are not classified below as to condition after treatment. Many of these cases came only once, as did also many of those whose diagnosis was undetermined.

The condition after treatment of the 22 tubercular patients who attended four times or more was as follows: Improved, 14; unimproved, 8; progressive, 0; died, 0. There were 4 deaths among Dispensary patients this year not included in the above list of 22, the patients being too ill to attend but one or two clinics during the year. There were also a few progressive cases that for one reason or another ceased to be dispensary patients, attending only two or three clinics during the year.

Last year 28 per cent. of the patients attending this Dispensary were tubercular; this year 44 per cent. were definitely known to be tubercular, with an increase in the total number attending, which means that a very much larger number of tuberculous individuals are being treated at the Dispensary, and that the Dispensary is reaching the people for whom it is primarily intended. We note a material increase this year in the number of visits to the Dispensary by patients, as well as an increase in the number of new patients presenting themselves for treatment. The total number of tuberculosis cases attending the Dispensary four or more times this year shows an increase of nearly 300 per cent. over last year.

Many of the new colored cases are found to be far advanced, and generally they have had little or no medical attention. They should have applied for treatment many months or perhaps years ago. There are in the City hundreds of such cases that are spreading infection broadcast, and until they can be gotten to the Dispensary and teaching and instruc-

tion in the method of preventing infection of others about them, we may not hope to curb the ravages of tuberculosis. The solution of this difficulty will come when the number of social workers and visiting nurses is sufficiently increased to handle the situation. They must be gotten by individual effort, personal appeal and urgent solicitation. Without the control and obliteration of such a focus of infection as the average, advanced, uninstructed tuberculosis case constitutes, the task of effecting material reduction in the number of infected individuals is hopeless. Great improvement in the tuberculosis situation may be effected by wisely combining and co-ordinating all of the activities, agencies and assets of the City now working more or less independently of each other.

The appended table of summaries gives a detailed account of the Dispensary work, month by month.

Respectfully submitted,

P. D. LIPSCOMB, M. D.,
Chief of Clinic.

Table of Summaries of Colored Tuberculosis Dispensary for the Year Ending December 31, 1920.

MONTH	SEX	AGE	STAGE OF TREATMENT	DIAGNOSIS	SPUTUM REPORT	WASSER-MANN REPORT	WEIGHT	No. of Visits	CONDITION				No LONGER UNDER TREATMENT																		
									Improved	Unimproved	Progressive	Died	No Case	Left City	Lost Sight of	To Other Dispensaries	To Private Phys'n	To Sanatorium													
January February March April May June July August September October November December	Male	Under 20 Years	New Patient	Old Patient	Discharged	Tubercular	Non-Tubercular	Undetermined	Positive	Negative	Not Examined	Positive	Negative	Not Examined	Increased	Stationary	Diminished	To Dispensary	Disease Arrested	Improved	Unimproved	Progressive	Died	No Case	Left City	Lost Sight of	To Other Dispensaries	To Private Phys'n	To Sanatorium		
	Female	Over 40 Years																													
	9	4	7	11	9	0	6	1	7	2	9	3	9	3	5	3	2	23	...	5	7	8	1	...	1	...	1	...	1		
	12	5	8	1	0	0	11	1	13	2	11	3	11	3	9	4	9	23	...	12	12	1	...	...	...	6	...	...	...
	12	5	14	5	0	0	11	0	8	1	11	6	11	6	9	4	9	55	...	12	12	1	...	...	...	1	...	...	...
	11	5	12	6	8	15	0	11	0	4	9	2	9	2	6	6	6	41	...	12	11	...	...	...	...	...	...	...	...
	6	9	3	8	4	1	14	0	7	4	9	2	9	2	6	6	6	24	...	7	6	...	...	...	...	...	...	...	...
	8	12	5	11	4	10	10	1	9	2	7	11	3	6	5	3	3	32	...	5	5	...	...	...	...	...	...	...	...
	9	7	0	8	3	9	1	4	1	9	7	11	3	6	5	1	1	8	20	...	5	5	
	6	10	2	13	1	5	11	0	10	3	9	4	5	13	1	1	5	37	...	3	3	
	9	14	2	17	4	10	13	0	6	4	10	5	8	3	4	6	8	4	27	...	3	3
	3	12	3	10	2	5	10	0	7	4	6	5	5	2	6	7	5	4	21	...	3	7
5	17	4	11	7	5	17	1	8	4	13	5	2	6	7	10	5	7	37	...	15	7	
6	8	1	9	4	5	9	0	9	4	4	4	4	1	1	7	1	3	18	...	6	8	
Total	72	7	10	18	359	14	2	

Report of District Physicians.

PHYSICIANS	NO. OF VISITS			COLOR OF PATIENTS			SEX OF PATIENTS			NO. OF DEATHS			HOSPITAL PATIENTS	
	White	Colored	Total	White	Colored	Total	Male	Female	Total	White	Colored	Total	Sent to City Home	On Hand December 31, 1920
Dr. L. D. Batkins.....	238	1,299	1,537	145	544	689	211	478	689	0	4	4	23	11
Dr. J. W. Hannabass.....	904	588	1,492	237	172	469	190	279	469	3	4	7	28	6
Dr. L. Ingram.....	1,451	340	1,791	1,451	340	1,791	970	821	1,791	1	2	3	3	0
Dr. B. L. Phillips.....	385	534	919	136	200	336	119	217	336	1	3	4	12	7
Dr. R. E. Timberlake.....	973	137	1,110	253	75	328	72	256	328	4	0	4	13	16
Total.....	3,951	2,898	6,849	2,282	1,331	3,613	1,562	2,051	3,613	9	13	22	79	40

REPORT OF CHIEF SANITARY OFFICER.

Dr. C. C. Hudson,
Health Officer,
Richmond, Va.

Sir: \

I have the honor to submit my report as Chief Sanitary Officer for the year ending December 31, 1920.

This report includes the reports of seven Sanitary Officers. There were 62,582 visits made by the Sanitary Officers during 1920, against 65,079 in 1919 and 61,084 in 1918. This shows a small decrease as compared with 1919, which may be explained by one Sanitary Officer being off duty the entire month of February on account of a serious illness, and the tabular report kept by the Chief Sanitary Officer being discontinued. Out of the 26,484 premises inspected 13,271 were found to be in good sanitary condition.

House to house inspection has been continued (as has been our custom for the last three years) when the inspectors were not working on dry closet and stable inspection in the fly season. All inspectors, with the exception of the two complaint officers, were detailed to house to house inspection on October 15th to March 15th. Two officers were detailed to stable inspection from March 15th to October 15th. There were 600 stables under inspection in the West End district, 477 being occupied, 75 vacant, 36 turned into garages and 12 were abolished. These stables house 1,449 horses, mules and ponies, and 52 cows. In the East End district there were 1,073 stables under inspection, 382 being occupied, 551 vacant, 131 turned into garages and 9 abolished. These stables house 1,612 horses, mules and ponies, and 54 cows. The above districts are divided by Fifth Street and have the same territory as they had in the year 1919. The number of occupied stables in each district were about the same as there were in 1919. I can report that all occupied stables in the inspected area are in as good condition as could be expected. With only two inspectors for this work, it is impossible to see that the manure is moved every four days as required by regulations of this Bureau.

Dry closets receive the whole time of three officers during fly season. This work was started March 15th and continued until October 15th. The count this year shows 3,034 dry closets in the City, 1,574 being located on the North side of the river and 1,460 on the South side. There are several blocks in the City where sewers have been extended, but the sewer connection cannot be made because water mains have not been extended, although the Health Bureau has recommended these extensions on several occasions. I trust that the Water Department will find means this year to make these extensions so that these dry closets may be abolished and replaced with water closets. I most strongly urge that you recommend to the proper authorities that sufficient funds be appropriated for sewer and water extensions to lessen the dry closet nuisance. In the past few years practically no money has been available

January 1, 1921.

Dr. C. C. Hudson,
Health Officer,
Richmond, Va.

Sir:

I submit the following report of my work for the year ending December 31, 1920. The following table shows cases released from quarantine during the last ten months of the year:

MONTH	CAUSE			TOTAL
	Diphtheria	Scarlet Fever	Tuberculoids	
March.....	5	18	15	38
April.....	11	16	16	43
May.....	4	9	11	24
June.....	5	12	14	31
July.....	3	3	23	29
August.....	6	2	16	24
September.....	46	7	8	61
October.....	153	12	13	178
November.....	171	19	14	204
December.....	92	21	12	125
TOTAL.....	496	119	142	757

Of the above releases 115 houses were fumigated with formaldehyde gas, and disinfectants were left at 132 houses for cleaning and disinfecting the furniture and wood work of rooms occupied by the patients. Some of the houses had been disinfected according to directions left by the Medical Inspector before my visit.

Part of my time was devoted to assisting the desk clerk, copying birth certificates, filling packages of barium carbonate for distribution, and other duties.

Respectfully submitted,

J. F. WALLER,
Inspector.